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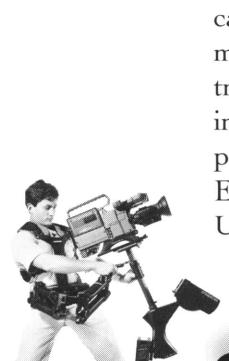

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American Cinematographer's October 1999 supplement celebrating the BSC's 50th anniversary will include historical information and photos, editorial on the BSC's legacy and contributions, and profiles of BSC officers and prominent members.

If you wish to place a congratulatory ad for the BSC in *AC's* October 1999 issue, please contact us.

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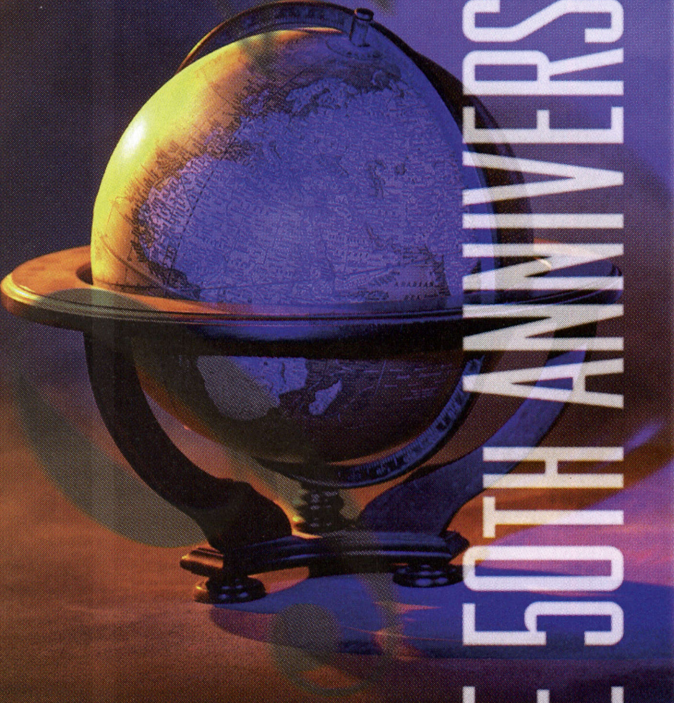

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MAY 1999 VOL. 80 NO. 5

American Cinematographer

The International Journal of Film & Digital Production Techniques

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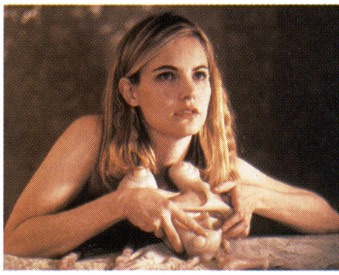

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On Our Cover: The lovely Titania (Michelle Pfeiffer), Queen of the Fairies, finds her realm rife with romantic longing in *A Midsummer Night's Dream*, directed by Michael Hoffman and photographed by Oliver Stapleton, BSC (photo by Mario Tursi, courtesy of Fox Searchlight Pictures).

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Sam Andrews
Stephanie Argy
Benjamin Bergery
Mark Dillon
Jay Holben
Chris Pizzello

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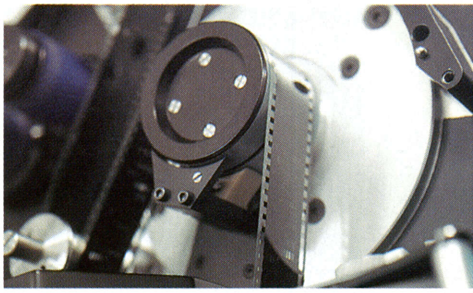

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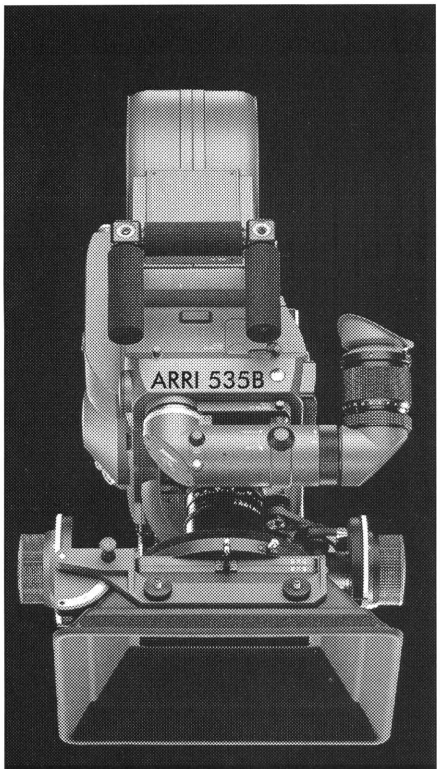

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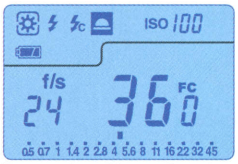
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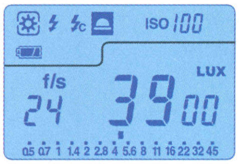
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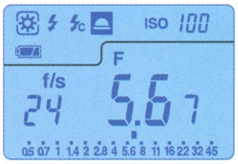
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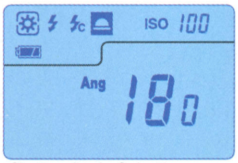
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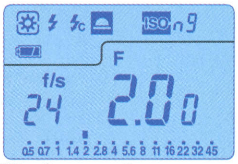
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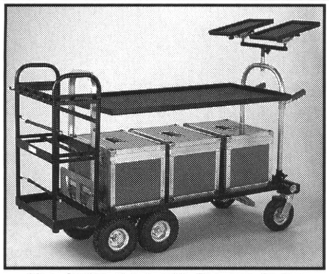
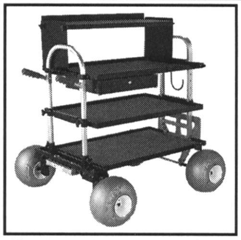


Mag Senior shown with Top and Bottom Shelves, HD Nose, Grip/Light Caddy, Handles, 8" Wheel Conversion Kit, Dual Axle Kit , Video Pin, Video Bracket and 9" Monitor Trays.



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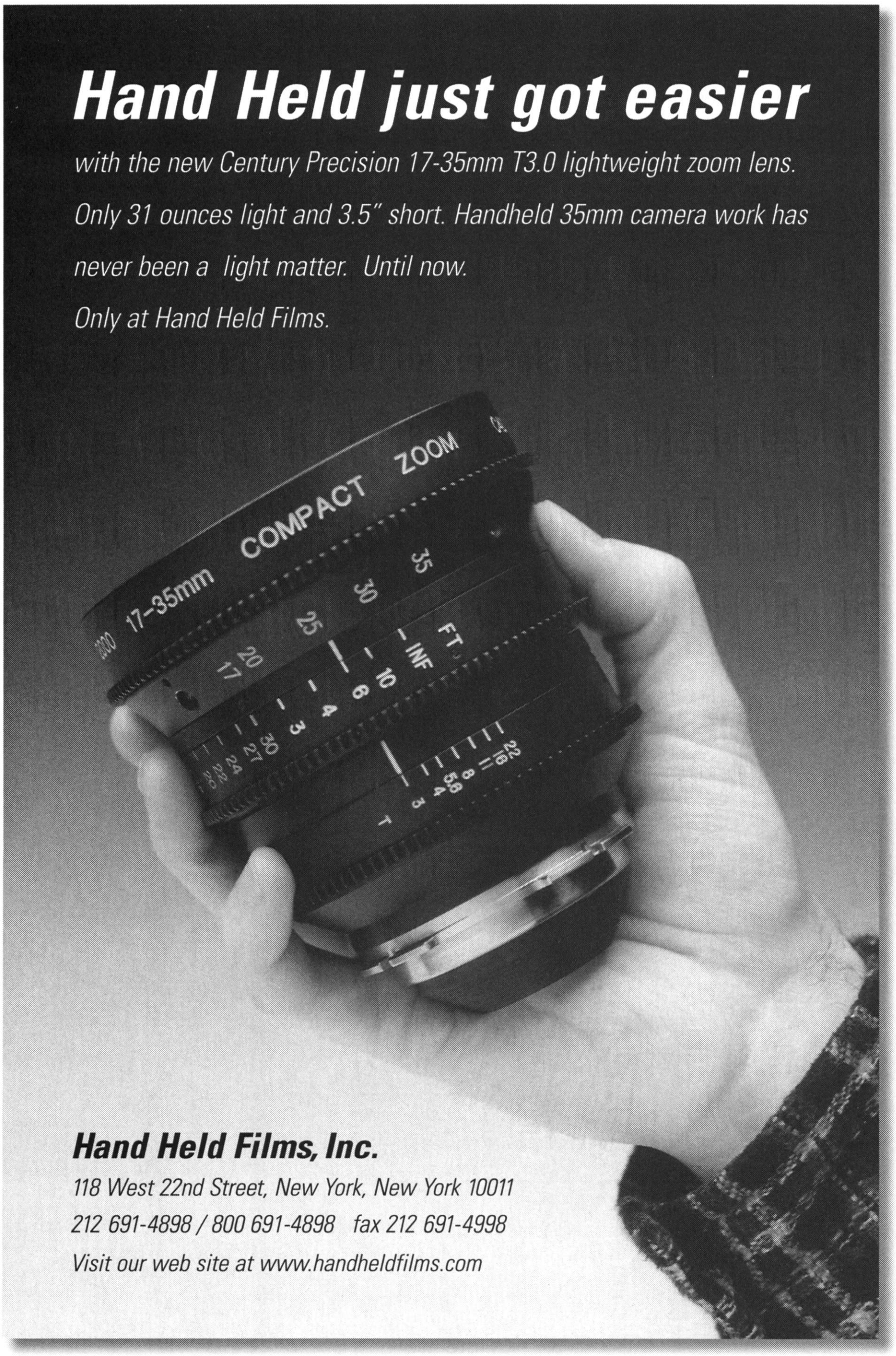

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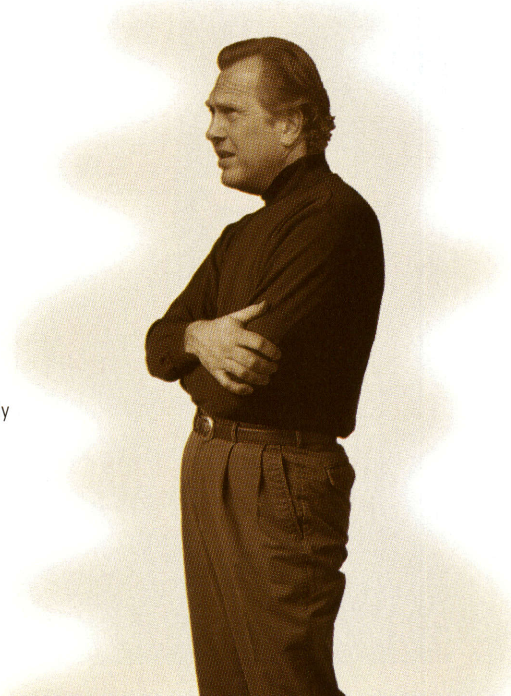
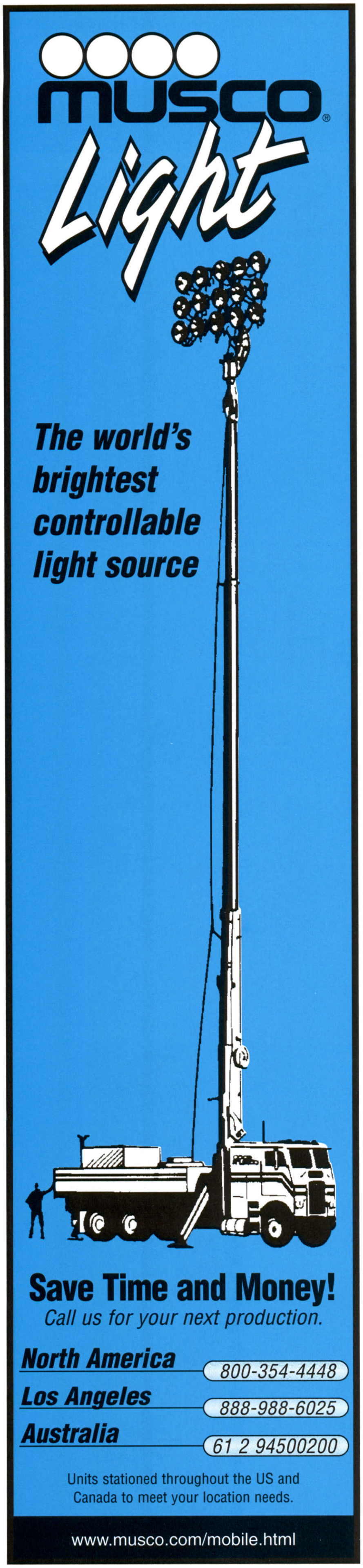
Jens Fischer

Feature film cinematographer, recently completed *Wagen Ut (Way Out)*

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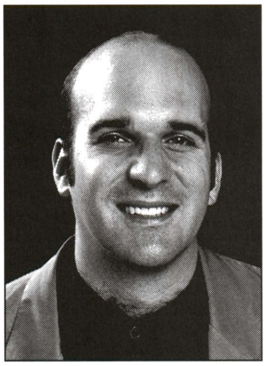

Throughout film history, few filmmakers have been able to resist William Shakespeare's works, which have been adapted for the big screen dozens of times. Sir Laurence Olivier set the standard by directing and starring in classic adaptations of *Henry V* (1944, photographed by Robert Krasker, BSC), *Hamlet* (1948, Desmond Dickinson, BSC) and *Richard III* (1956, Otto Heller). In the years since, many others have tackled the Shakespeare canon, with variable results. English actor/director Kenneth Branagh has led the charge with ambitious versions of *Henry V* (1989, Kenneth MacMillan, BSC), *Much Ado About Nothing* (1993, Roger Lanser) and *Hamlet* (1996, Alex Thomson, BSC). Other recent successes include Richard Loncraine's imaginative rendition of *Richard III* (1995, Peter Bizou, BSC), in which co-writer/star Sir Ian McKellen portrays the English monarch as a black-shirted thug circa 1930, and Baz Luhrmann's hip, freewheeling adaptation of *Romeo + Juliet* (1996, Don McAlpine, ASC, ACS), which pairs Leonardo DiCaprio and Claire Danes as the earnest but ill-fated lovers.

The Bard is very *en vogue* at the moment, of course, following the stunning success of *Shakespeare in Love,* which shocked many by prancing off with the Academy Award for Best Picture in March. This month, audiences will be treated to Michael Hoffman's vision of *A Midsummer Night's Dream,* which showcases fanciful settings and the artful photography of Oliver Stapleton, BSC ("Enchanted Forest," page 36).

Fantasy also drives the narrative in David Cronenberg's absorbingly offbeat *eXistenZ* (page 48). Cinematographer Peter Suschitzky, BSC uses low-key methods to limn a high-tech future in which virtual-reality simulations have inspired near-religious devotion among the world's gaming addicts, who have moved well beyond the simpler (and safer) pleasures of a Sony PlayStation.

This issue of *AC* also offers profiles of the year's ASC Award-nominated television cinematographers ("Tuned-In Talents," page 88), as well as the first article in a two-part series on the industry's telecine business. In a detailed piece that begins on page 108 ("From Film to Tape"), Jay Holben surveys the major machines and manufacturers. Next month, *AC* technical editor Christopher Probst will explore some of the latest trends and techniques.

Also in this edition, we've toured Europe to assess the overseas production scene in Britain, Ireland, Germany and France. This special section begins on page 61.

For those of you who are wondering about the absence of a little picture called *Star Wars: Episode 1 — The Phantom Menace,* fear not. We'll present full coverage of this long-awaited sci-fi event film in our September issue, which will be entirely devoted to the latest installment of George Lucas's epic space opera.

Sincerely,

Stephen Pizzello
Executive Editor

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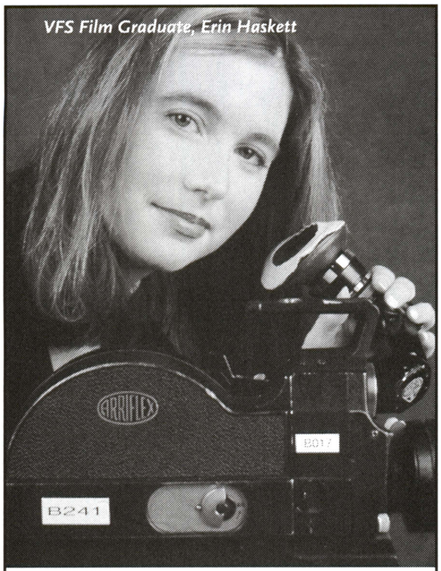
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Letters

Female Trouble

I've just started to read the 80th Anniversary edition of *American Cinematographer* (March '99), and I want to congratulate your staff on an outstanding achievement. The historical articles and reviews of so many great films will give me hours of reading pleasure.

However, I was somewhat startled when I saw the black-and-white photograph of the 1927 ASC initiation banquet (page 186) — there's not a woman in sight! I then scanned the published roster of members and officers (1919-1999) in a vain attempt to find the name of any woman. Can you tell me if there has ever been a woman member or officer of the ASC?

— George Dunbar
Toronto, Ontario

The ASC currently has five female members: Judy Irola, Ellen Kuras, Brianne Murphy, Nancy Schreiber and Sandi Sissel. All except the most recent inductee, Ms. Kuras, are listed on the anniversary issue's roster.

Private Ryan* vs. *The Thin Red Line

In the ongoing debates over 2.40:1 vs. 1.85:1 and anamorphic vs. Super 35, *The Thin Red Line* ("The War Within," *AC* Feb. '99) provides strong support for the first in both instances. I found its battle scenes to be far more effective than those in *Saving Private Ryan,* because in addition to the way the scenes were staged, photographed and edited, the use of shorter lenses with the wider frame gave a better sense of being in the middle of the action with suddenly surprising things occurring at the edges of the frame (viewed out of the corner of the eyes, as it were). The cleanness and sharpness of the images, thanks to the use of the full area of the frame, also helped [to create] this sense of reality. The battle scenes were also shot with constantly moving cameras in a manner that is supposedly difficult or impossible to achieve with anamorphic lenses.

— Rick Mitchell
Los Angeles, CA

Errata

On page 52 of the aforementioned article about John Toll, ASC's work on *The Thin Red Line,* the Libra III remote head is referred to as an update of the Megamount. However, Dan Gillham, managing director of England's Dynamic Mounts International Ltd., wrote in to correct us on this point:

"I noted with interest your article about *The Thin Red Line* in the February 1999 issue of *American Cinematographer.* While [I found it to be] informative, I would like to draw your attention to two inaccuracies.

"Under the subheading of the remote head used for the film, it is said that the Libra III was used, which is a new version of the Megamount, and both have been designed by Nick Phillips.

"The truth of the issue is this:

"1. Nick designed the concept and mechanics. I have been responsible for the entire electronic systems, and the software. Nick and I have been working together for the past six years or so, pooling our resources to produce the Megamount and Libra III camera heads.

"2. The Libra III is not, in fact, the update of the Megamount. The Libra III has been purely designed as a compact stabilized head, whereas the Megamount is intended for studio-type work, allowing a no-stops three-axis movement of the camera.

"The update to the Megamount is the Mega III, which [was unveiled] at the Production Show in London on March 10. The Mega III has been redesigned solely by me, while Nick is tackling the Libra III market in the States." ■

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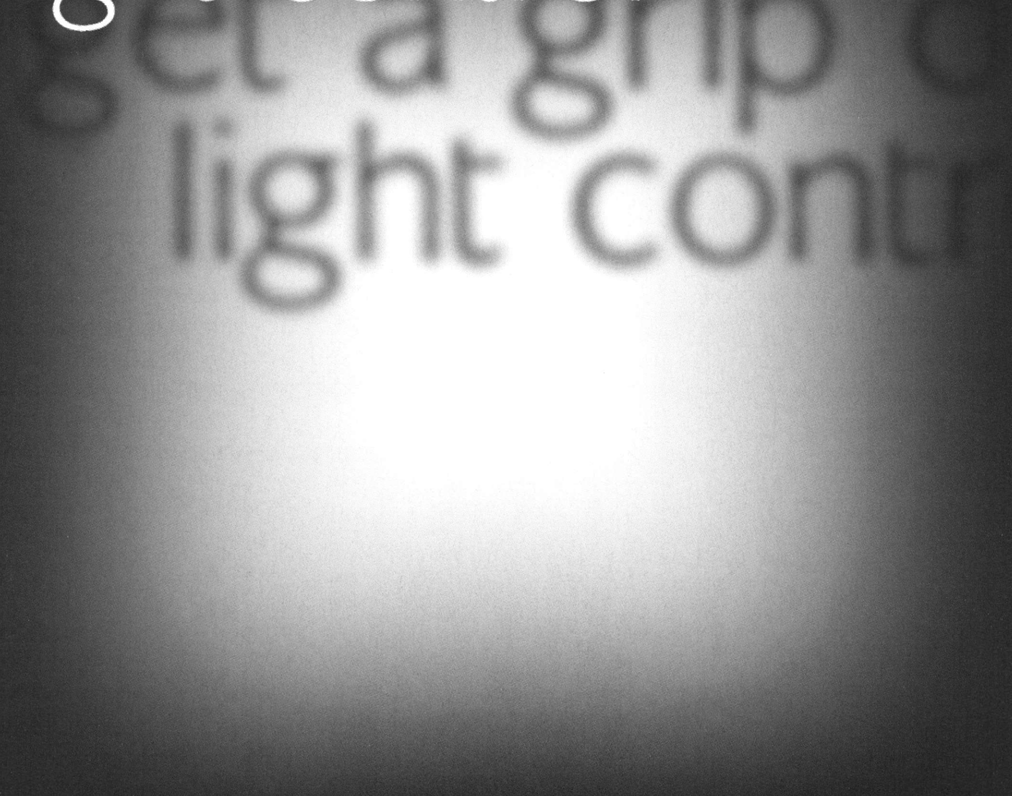

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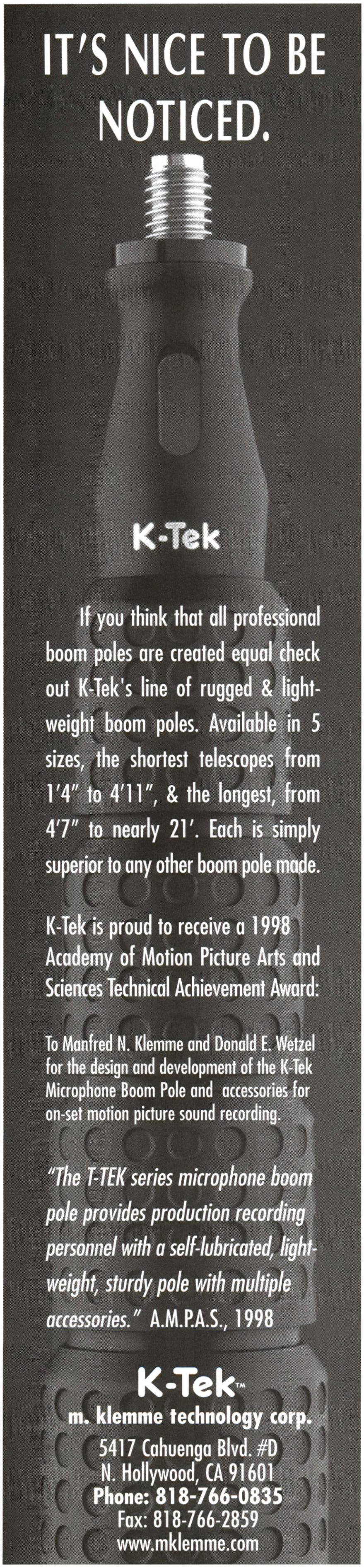
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The Post Process

Digital Human Catalogue

by Debra Kaufman

The question of whether computer-graphics animators will ever be able to fashion a truly photorealistic computer-generated human has long been a subject of intense debate. What no one will contest is that the CG construction of the human form's building blocks has long been a supremely difficult and hugely labor-intensive job.

That task just became easier, however, due to the partnership between Film East, an effects company with a CyberWare full-body scanner, and Paraform, a Silicon Valley start-up firm with specialized scanning software. In order to figure out what makes Paraform's solution so unique, one must first scrutinize the scanning process.

Scanning, in and of itself, is not unique. In fact, hundreds of scanners and digitizers have been on the marketplace for a decade or more. Granted, few *full-body* scanners are available: though the CyberWare full-body scanner was introduced four years ago, only six exist nationwide, four of which are owned by the U.S. military. Full-body scanning has found most of its adherents in the industrial sector.

But Paraform's concerns lie in the fact that scanning presents a fundamental problem for the entertainment sector. Animators need models that can be manipulated easily, and scanning doesn't produce such forms. "The polygonal models that result from scans are static," explains Paraform director of marketing John Doffing. "There's no 'intelligence' in the surface of the models, which means that you can't stretch, animate or morph them. To animate them in Maya, SoftImage or 3D Studio Max requires highly trained specialists to restructure the polygons — an arduous process."

That's where the partnership between Film East and Paraform comes into play. Film East, an East Coast-based, state-of-the-art visual effects, broadcast design and film services company aimed at corporate/industrial clients, offers a CyberWare full-body scanner in its new Los Angeles facility. However, it is Paraform's unique software component that may truly revolutionize CG modeling. In a seamless operation, the Paraform software allows users to take the unstructured polygon mesh and — based on customized, user-defined parameters — transform it into a NURBS (non-uniform ration B-spline) model. What results is a scanned model that's immediately available for animation, through either motion-capture or keyframe animation techniques.

Paraform was founded in 1997, on the heels of research by Dr. Venkat Krishnamurthy. While studying for a Ph.D. in computer science at Stanford University, Krishnamurthy gained a specialized knowledge in 3-D scanning, and has consulted with Industrial Light & Magic, DreamWorks SKG, Medialab, Mass. Illusions (now Manex Visual Effects) and other facilities. With the likes of CGI pioneers/luminaries Ed Catmull and Mark Sylvester on the *we're ready!!*

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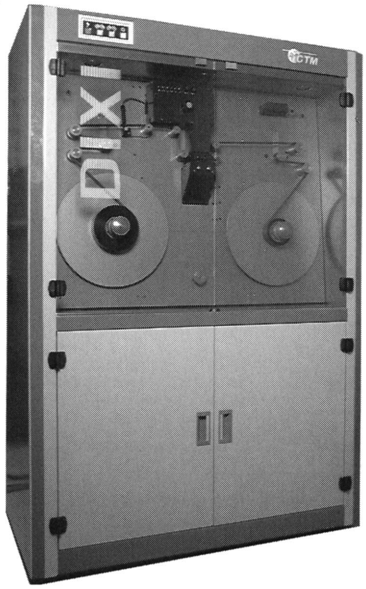

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As seen at NAB

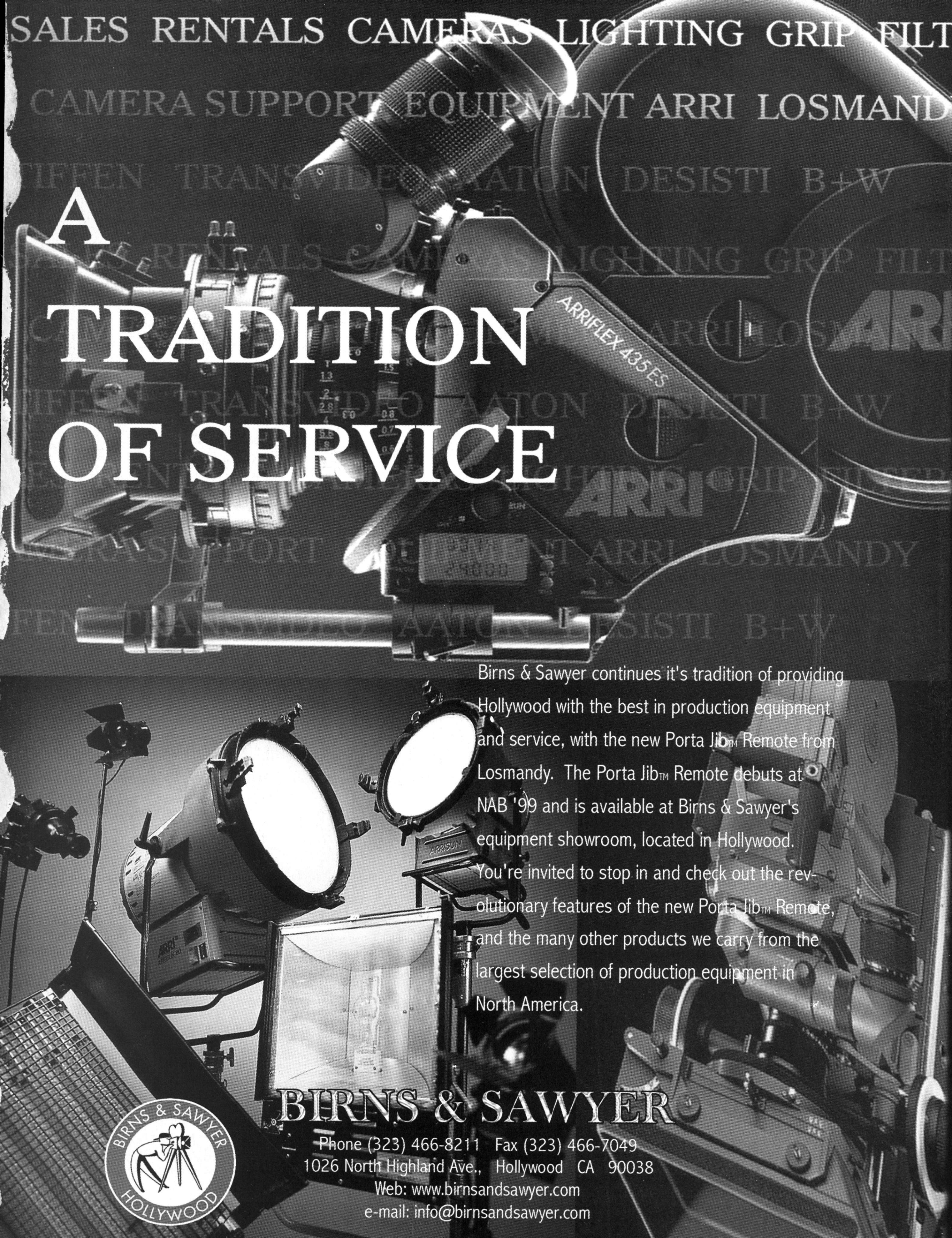
company's board of advisors, Paraform was funded by Paul Allen's Vulcan Ventures, as well as Tech Farm and Chase Capital Partners, and debuted their technology at Siggraph '98.

To launch Paraform into the marketplace and create a buzz about its potential, the company presented a scan of its first digital human, an African-American body builder. The firm turned 500,000 polygons into a NURBS model, added an IK (inverse kinematics) skeleton for easy animating, and then began to give it away on their website (www.paraform.com). According to Doffing, the website has had thousands of hits from users who could take the model straight into Alias/Wavefront Maya.

Finding their "models" through talent agencies, Paraform is attempting to create a "digital human catalogue" that represents the widest possible range of human beings. With a goal of 100 digital humans for the entire roster, Paraform has made a concerted effort to scan in people who represent various races, ages, body types, heights and weights. During this *AC* correspondent's studio visit, artists were executing digital capture of a petite Latina and a large African-American man. Doffing points out that identifying the models will impossible, even though the digital actors' ethnicities and body types will be quite evident. Currently, six digital humans are for sale on the website, along with one free digital human as well as the free "Paraform man," which was made from a maquette.

Paraform expects its real sales to come from software that is set to launch in May. The core Paraform 1.0 software package offers true flexibility due to its platform independence: this means that it can function on virtually any scanner platform.

"The purpose [of the software] is to show the world that 3-D scanning is viable for creating something beyond a static model," Doffing explains. "The Holy Grail is to get a photorealistic person that you can animate into the computer. That would save money and time, and allow for more realism." ■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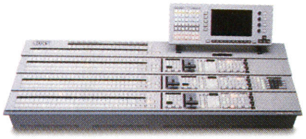

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Production Slate

compiled by Andrew O. Thompson

On Fox TV's popular series *Ally McBeal*, busybody secretary Elaine Vassal (Jane Krakowski) shows lawyer Richard Fish (Greg Germann) her latest invention, as modeled by his partner John Cage (Peter MacNicol). Far right: Cage shares an anxiously tender moment with Ally (Calista Flockhart).

Loopy Legal Tactics

by Andrew O. Thompson

The oddball ensemble of the Fox series *Ally McBeal* may not be well-versed in Emily Post-style etiquette, but their garrulous gabfests certainly make for entertaining spectacle. While shooting the misadventures of the quirky title character and her crazed colleagues at the Cage & Fish law firm, director of photography Billy Dickson must often plan to integrate visual effects — most often mattes and/or computer-generated imagery — into his compositions.

Most of the show's effects consist of absurd sight gags that reveal the various characters' innermost feelings as they're confronted with awkward, exasperating or embarrassing situations. Perhaps the memorable example of this is the dancing diapered baby that haunted McBeal when her racing biological clock became the subject of one episode — the CG infant quickly became the show's unofficial icon in its first season. But many of the show's other visual jests are even more off-the-wall: Ally's tongue elongating in serpentine fashion as she lusts over a potential lover; her heart literally being pierced with multiple arrows after a college boyfriend admits that he is now married; and the comedic decapitation of Ally's ex-lover after she finds that he hasn't moved to another city after all.

"Whenever there's a sequence that is semi-fantasy or effects-oriented in nature, I gear the photography toward [a slightly altered look] in a larger sense, without getting locked into anything," offers Dickson, who earned an ASC Award nomination for the first-season episode "Silver Bells" (see *AC* May '98). "I may add a bit more fill light to paint a broader picture, and go a bit wider than normal, because *Ally McBeal* is mainly shot on a 75mm or longer lens. I may use a 50mm, 35mm, or even a 14.5mm lens, so the style does change somewhat. But we try not to alter the look too much, since the shot is going to stand out anyway because it's fantasy- or effects-oriented."

Dickson's primary consideration for effects work is usually his film stock. "I normally shoot with the Fuji 500 [Super F 8571]," he notes, "but for effects work, we typically switch to the [Super F 8551] 250 ASA tungsten stock, which requires a full stop of additional light. Because of the greenscreen work, we also need a little finer grain to pull a good matte."

The cinematographer strives to make his effects-oriented camerawork as unobtrusive as possible. "We'll just slide our greenscreen behind the actor on our regular sets with the same natural lighting setup, so it doesn't look like an effects shot is being lit," Dickson describes. "That way, the resulting footage doesn't stick out the way it might if we took the actors to a separate greenscreen stage and tried to duplicate the on-set lighting."

Dickson is certainly not one to shy away from emerging technologies. In

Photos by Randy Tepper, Larry Watson and Andrew Semel, courtesy of Fox TV.

December 17, 1903 - Kitty Hawk, N.C.

The Wright Brothers stood in an empty field

and saw a runway.

Fish and his former love interest, Judge Whippercone (Dyan Cannon), enjoy an evening out on the town. For a "naturally rich" look, cameraman Billy Dickson opts for soft sources swathed in muslin and CTO.

fact, the cinematographer has been fashioning effects on his home computer ever since he shot the pilot for the sci-fi series *Babylon 5*. Fortuitously enough, he had been experimenting with multidimensional modeling on the Amiga Toaster platform, the same apparatus that was being utilized by the artists at *B5*'s effects house, Foundation Imaging, under the supervision of Ron Thorton. Dickson soon became adept enough with the program to augment his photography on low-budget TV movies with homemade 3-D models and matte paintings.

On *Ally McBeal*, Dickson's effects knowledge has allowed him to work closely with the show's visual effects supervisor, Mike Most. Using Lightwave software, the cameraman has constructed a 3-D computer model of the Cage & Fish offices to help him map out lighting schematics for different times of day. This mockup also comes in quite handy for unusual shots that might require effects planning. "As I've learned more about 3-D effects, I've been better able to interface with the effects artists," the cinematographers says. "Mike's CG model builders will put a model on a floppy disk, and then he'll come to my house, where we'll put it on my computer and play with the lights a little bit to see how we're going to do the scene.

"I've also discussed lighting and matching issues with the CGI artists at Encore. Their main issues are building the models, doing the composites and then turning it all around [in our short production time] — so the lighting becomes secondary to them. In order to better match an effects shot with the rest of a scene, I try to make them see the concerns in actual 3-D lighting — for example, looking at the way shadows fall so they will realize that you can use two lights in a CG shot instead of four or five."

Last season, Dickson made use of the Lightwave CG-blueprint to determine how to illuminate a scene that had Ally swimming through the Cage & Fish offices, which in her daydream appears to be submerged underwater. He first filmed the set after it had been flooded with smoke lit up with 6K HMI Pars, which were coated with full-blue gels and bounced off Mylar to mimic watery patterns. Next, actress Calista Flockhart was suspended on wires in front of a greenscreen while "swimming" for the camera. Behind her, telephones and other office objects were strung up with monofilament, and then bobbed up and down in a buoy-like fashion. The two images were later composited together with CG bubbles that were added for good measure. "We put some of the Mylar [sheen] on Calista herself as she 'swam' in front of the greenscreen," expounds Dickson. "The shimmering effect was nice because it gave a sense of interactive lighting. Mike Most likes to use interactive lighting as much as possible to mesh with the effect. If there's a fire element that's put in, we'll have a little orange glow on their faces at the same time. This helps Mike out greatly, because it softens the look of the effect."

Dickson made his directorial debut on the episode "Civil Wars," promoting gaffer Myron Hyman to cinematographer and the rest of his camera crew one rung apiece. Stylistically, Dickson's episode is jam-packed with hysterical, slapstick humor. For example, in the midst of a heated argument between Ally and Georgia (Courtney Thorne-Smith), a fellow lawyer and the wife of Ally's long-lost love, Billy, the two women's heads momentarily morph into those of cats.

The episode's most involved gag takes place as Ally is lounging around her apartment, debating with her roommate, Renée (Lisa Nicole Carson), about whether or not Billy will call. When the phone suddenly rings, Ally dives across the room and grabs the handset, only to be greeted with a telemarketer's enthusiastic sales pitch for long-distance phone service. An infuriated and frustrated Ally unleashes a litany of profanities into the phone and then yanks the shocked saleswoman's head out of the receiver.

"The head-through-the-phone gag was more complex than normal," Dickson reveals. "It required three elements — two greenscreens and a plate. We shot Calista's right arm extended with the phone against a greenscreen that could be later put in as a separate element. Then we shot the live-action piece of her holding the woman's head off the frame. Calista and the woman's head were both set against greenscreen. We could have shot Calista just extending her left arm, which held nothing, and then matted in the woman's head in separately, but the interaction became better with the grasping of the hair and the pulling motion. Basically, we ducked the actress out of frame while Calista was holding onto her hair and pulling her up — that was all matted out against green. The third element was the plate shot of the background, which was done with a locked-off camera." As usual, Dickson stuck with a uniform lighting setup: two muslin-covered China

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- Pierre de Lespinois, Talisman Crest Limited

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balls placed behind a pair of 4' x 4' grids to lend a soft, downward glow that appeared to emanate from a nearby practical source.

Dickson characterizes the show overall look as "naturally rich." He favors such fixtures as muslin-covered Chimera Chinese lanterns, 1K spot Pars in soft boxes, and 20Ks aimed through double 12' x 12' muslins, all of which produce a soft aura that is further warmed up with CTO gels. This lighting motif is accented by sets with vibrant hues, the soft quality of the fine-grained Fuji stock, and some deft color manipulation in telecine. "The Fuji film has a very flavorful texture," he says. "In telecine, I go more toward the warm side and try to pull back a little on the blue tones. Since I sometimes play very little fill light on faces, this 'richness' comes when the scene is timed darker without crushing the blacks. Pumping up the colors slightly tends to give a real glow to the natural light coming through windows or from places off-camera.

"We push our chroma levels a bit higher than the normal range, and then bring down the black levels to 'legal limits,'" the cameraman continues. "I try to keep the mid-ranges within reason. If you push them too much, the image can really get flat and muddy. We're still within broadcast standards, but I think the norm is *not* to push the chroma, because it tends to bleed and make a little more noise. And as we all know, the transmission quality often varies from cable to satellite to airwaves."

Heightening this contrasty imagery is the show's production design, which has gradually progressed into a much deeper palette over the course of the series' run. "Our colors have gotten more lush, veering away from the pastel side of the first season's sets," offers Dickson. "Lee Fisher, the production designer on the pilot, came up with a concept that was a little lighter — more traditional, sitcom-type colors. Since Peter Politonoff took over as designer, our sets have gone into richer, dark tones — blacks, grays and maroons, really nice colors that are full of depth. I tend to keep the light off the walls so that its richness will build up into a slightly underexposed look, allowing us to get more color out of them."

The duties involved in helming "Civil Wars" left the cinematographer with a greater grasp of the issues faced by the various directors who take charge of *Ally McBeal*'s Manhattan Beach-based soundstages during the course of its 23-episode season. "For me, the biggest adjustment was putting aside my light meter and my compositional concerns. Suddenly, I was looking at the video monitor for performance reasons, while still keeping the cinematography issues in the back of my mind. It was also hard to face the necessity of doing a shot that wasn't as aesthetically pleasing as I would have liked [in order to advance the storytelling]. By walking in the directors' shoes, I've definitely gotten a better understanding of their potential frustrations."

Storaro Advises Digital Artists

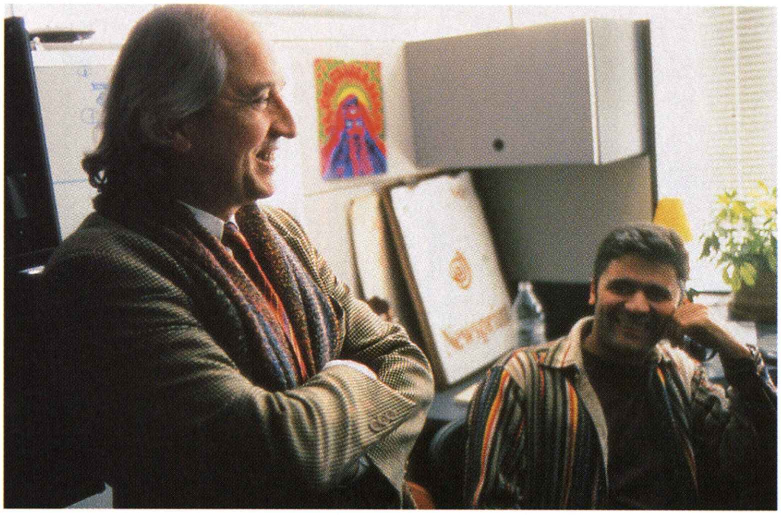
by Jay Holben

As computer-generated effects become increasingly prevalent in everyday production, visual effects companies are employing more and more digital imagemakers to keep up with the onslaught of work. These new hires often come from diverse trades not necessarily grounded in moviemaking — aside from attending their local movie theaters, computer-savvy types trained in the aerospace or engineering industries probably have had little contact with the filmmaking realm. To address this situation, many effects houses are implementing training programs that cover the ins and outs of particle systems, nurbs and rotoscoping, along with the creative fundamentals of real-world filmmaking, including production design and cinematography.

Culver City-based Sony Pictures Imageworks, which has provided visual effects for such films as *Contact*, *Starship Troopers*, *Godzilla* and the upcoming *Stuart Little*, has developed a technology-based training program with a strong aesthetic focus. "We have a core set of classes to quickly get the new people up to speed," explains Sande Scoredos, head of the Imageworks training department.

Scoredos, a former collegiate instructor of art and microwave CAD-based engineering, was hired to initiate and manage the training program. Previously, he had inaugurated similar scenarios at Wavefront Technologies and Rhythm & Hues. "In addition to writing a lot of our own proprietary tools, we are working on high-end computer systems with software like Wavefront and SoftImage," says Scoredos. "It's therefore necessary to bring our new members up to speed on the tools that we use here, and to train our seasoned artists as the software palette evolves. At any given time, we have six hours' worth of structured classroom training going on. I've got a whole class filled with

Director of photography Vittorio Storaro, ASC, AIC shares a humorous anecdote with digital character animator Pepe Valencia during a discussion with effects artists at Sony Pictures Imageworks.



Photos by Jim Britt, courtesy of Sony Pictures Imageworks.

"When we began to research HDTV, Sony was the only company with full soup to nuts capabilities."

- Dave Shaw, Madison Square Garden Networks

When Madison Square Garden Networks developed a new digital vision for sports broadcasting, they went to a company that had already looked ahead to a complete HDTV solution for the future. As Dave Shaw, Vice President of Technical Operations explained, "When we started investigating HDTV, Sony was the first and only company to pull together a fully functional HD production and post production system." In fact, starting with Sony's HDCAM® camcorder, Sony has helped MSG with everything from HD production switchers to the DME multi-effects system and has outfitted two National Mobile Television trucks with HD equipment to cover professional basketball, hockey and baseball like never before. What kind of difference has getting ready for the HD future with Sony made? "It's like getting a front row seat at a hockey game, only not quite as cold," says MSG's Mike McCarthy, Senior Vice President and Executive Producer, "It's just exhilarating."

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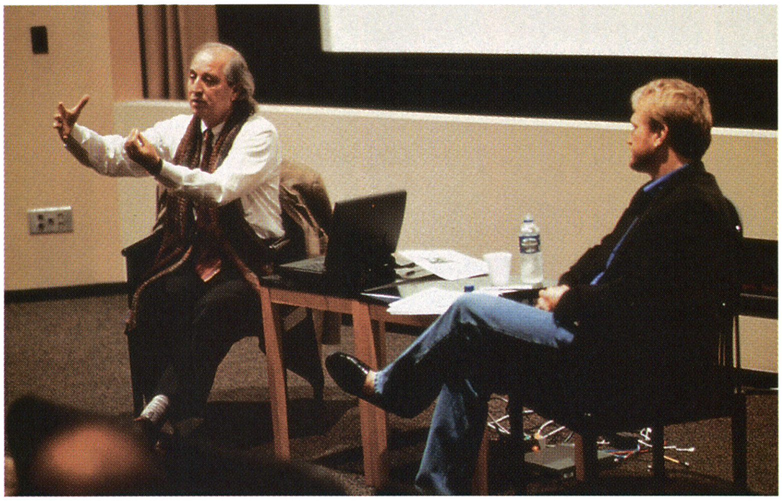
SGIs just for that purpose. Most new members will get 20 to 30 hours of training to bring them up to speed, and our working artists get about 40 to 60 hours of training per year. That number can rise depending on what we're training them for and how the industry is evolving.

"Instruction outside the technical aspects is very important," she adds. "We want our artists to be technical, but they also have to have the other side of the brain working with the aesthetics. We have quite a few people who are balanced both ways, and that's great — but we try to bring really technical people into a more artistic environment, and vice-versa."



Sharing the floor with SPI's senior visual effects supervisor Scott E. Anderson, Storaro expounds on his theories of lighting and composition as applied to the realm of computer-generated imagery.

Elements of this interdisciplinary philosophy are exemplified by classes in acting, life drawing, costume design and other disciplines. This experience is also enhanced with such "extracurricular" activities as film screenings or group outings to a museum. After production designer/futurist consultant Syd Mead (*Star Trek - The Motion Picture*, *Tron*, *2010* and *Johnny Mnemonic*) spoke to artists at Imageworks, Scoredos organized a field trip to Hollywood's Cinerama Dome theater, where the artists could examine Mead's work firsthand during a screening of *Blade Runner*.

Another aspect of the training program involves inviting premiere members of the filmmaking community to open discussions at the Imageworks facility. Previous attendees have included veteran animators Chuck Jones, Joe Barbara and Ray Harryhausen. Recently, Anderson visited Italy to exhibit some of Sony Imageworks' efforts on *Starship Troopers*. While there, he met with director of photography Vittorio Storaro, ASC, AIC (*The Conformist*, *Apocalypse Now*, *Reds* and *Bulworth*). Earlier this year, the cinematographer visited the Southern California area to speak at a Los Angeles County Museum of Art retrospective of his films, and he later dropped in on Sony Imageworks to discuss his photographic work.

"On the whole, visual effects artists can do a little more to bring cinematographers into the fold," opines Anderson. "It's rare to find a visual effects artist that actually has an appreciation for cinematography — that's another reason why I wanted to bring in Vittorio. I often hear visual effects artists say, 'Well, why can't we just have them lock down the camera?' When you hear Vittorio speak, you understand why. It's not just a technical matter — it's about the emotion, pacing and life of the film. It's very important for effects artists to hear the passion and motivation that everyone else on a film has for their area of responsibility. Vittorio really exudes a passion and love for cinema that, frankly, some digital technicians lack. Educating visual effects artists is a great step toward keeping our doors open to cinematographers by saying, 'We're not here to supplant you, we're only here to help create the same vision. We're no different than any other creative department.'"

Anderson continues, "What was really exciting about Vittorio's talk was the rare amount of respect that he, as a cinematographer, gives to the digital realm. He openly calls it 'digital cinematography,' and recognizes it as another field of collaboration. Vittorio is brilliant and very experienced, and he has an amazing creative eye. He was willing to collaborate openly and learn with us — to develop with us and to push us. It's a great time for the future."

In sharing his experience with the Imageworks staff, Storaro began with the precept that proper composition is an important component in any type of visual conception. "In cinema, you are selecting the piece of reality to show the audience," the noteworthy cameraman opined. "Through the camera angle, lens choices and framing, you are using one very important tool: composition. I don't know how conscious you are of composition in your work, but it is one of the most important elements. Without composition, it is difficult to put one element in relation to another.

"As they took me around the facility this morning, I saw a lot of you studying your screens on how to animate a creature. If you moved that creature from the center of the screen — perhaps off to the side and slightly higher — the [resulting] difference in perspective would totally change the character. Composition is a form of writing. You use the composition to say 'Look over here!' or 'Look this way and you are going to have this reaction, and afterwards you will have this information.'

"Color is also incredibly important to composition," Storaro maintained. "Once you start to know the meaning of color, then you start to know how to write and compose with color. Using either a warm or cold color can completely change the perspective. Take one creature in the foreground and put the other in the background. By putting a red light on the front creature, and a green or a cyan light on the creature in the background, and you can force the perspective: the one in the foreground

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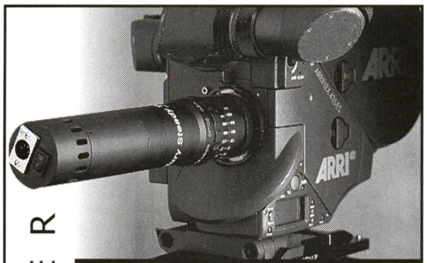

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comes closer, and the one in the background moves further away. Now try the opposite — put the green or cyan light in the foreground and the red light in the background — and you will become confused. The distance between them will become compressed as the warm color 'moves' forward and the cool color 'moves' backward. You can use this type of information to tell the story. The more you know about these tools, the more you can create meaningful compositions. The more concerned you are with composition, the better you can express yourself to an audience.

"Another great problem that exists today is that much of the work is done on video," the cinematographer added. "We master on film negative — because it remains a better medium — but then we transfer to video. We look at rushes, edit and do all of our work on video. Everything is seen on a small video screen, which measures anywhere from eight to 27 inches across diagonally. What we're missing is seeing the full image size, which will stretch some 40 feet across the movie screen. There's a very big difference in image perspective from the small screen to the big one. A movie shot in the Forties, Fifties or Seventies looks much different than one done in the Nineties. The use of the video monitor is a big part of that [stylistic difference]. We tend to shoot much closer [nowadays], because we can then see detail on a small screen. But that same image becomes quite large on the real screen, and therefore completely changes the language of cinema. Both digital artists and cinematographers need to be very conscious of this [discrepancy] in their work, because today's cinematography is a combination of optical and digital imagery."

Film clips courtesy of Working Pictures.

Loner Francis Seed (John Michael Bolger) meditates on his existential quest in *Seed*, an independent feature directed and photographed by commercials veteran Bobby Sheehan. Postproduction house Oculus oversaw this experimental movie's special lab processes and effects work.

Oculus Post-Op

by Mark Dillon

Oculus, a New York-based company that provides complete digital postproduction services to independent films and some East Coast Hollywood productions, recently played an integral role in two very disparate undertakings: the low-budget feature *Seed*, a project by director/cinematographer Bobby Sheehan, and *Stairway to Heaven*, a short film from Errol Morris, the documentarian responsible for *Mr. Death: The Rise and Fall of Fred A. Leuchter*, *The Thin Blue Line* and *Fast, Cheap and Out of Control*. The 16-month-

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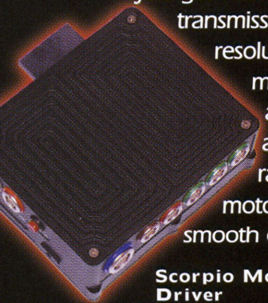

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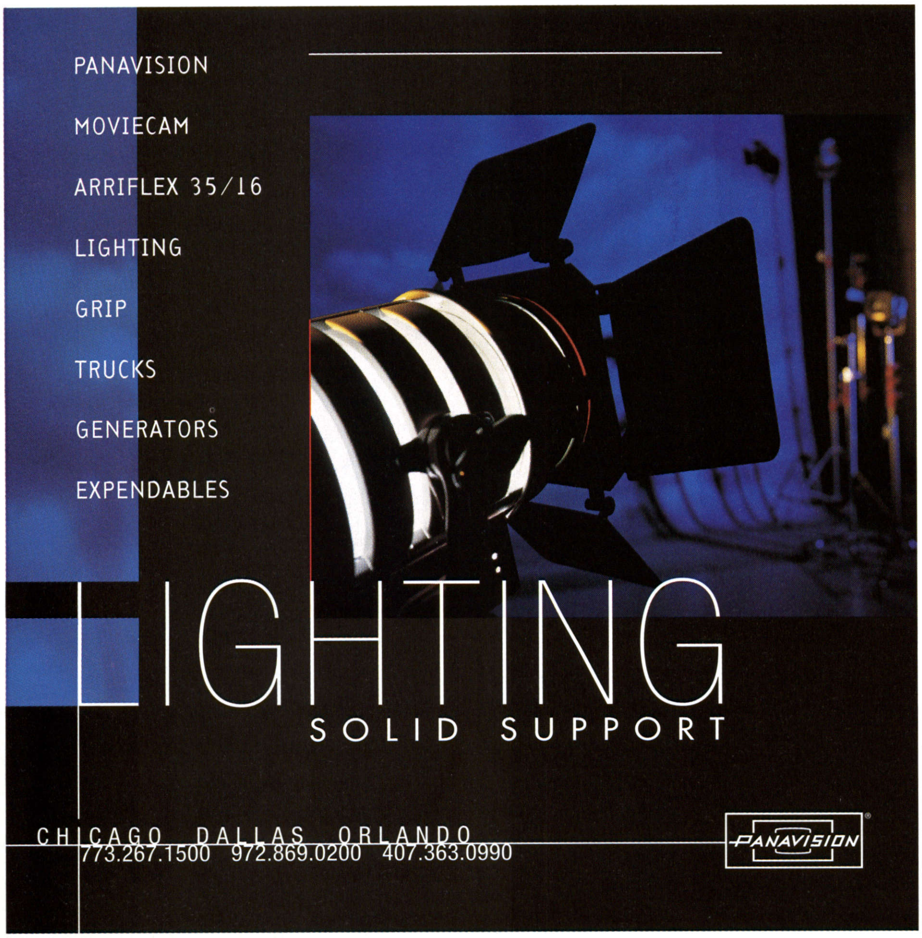

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The wayward Seed continues to amble down an unknown spiritual path.

old Oculus is the motion picture department of Post Perfect, which began developing its visual effects and 2-D and 3-D graphics divisions six years ago.

Sheehan came to Oculus via *Seed's* editor, Alex Albanese, who had worked with the company one year before on the film *Row Your Boat*. Albanese had enjoyed a positive collaboration with two of the company's key personnel — managing director Paco Carr and executive producer Paul Schneider.

Sheehan has 15 years of experience shooting and directing commercials, and *Seed* was a visually ambitious project with very specific needs. In telling the story of dying loner Francis Seed's spiritual quest across America, Sheehan had principle actor John Michael Bolger interact with a host of non-actors (including barflies, shopkeepers, an artist, a junkie and everyday street folk) to hear their views on life and love. The unscripted *Seed* is essentially a series of interviews, but Sheehan aspired to something more than a "talking heads" piece.

To that end, Sheehan shot and intercut many different emulsions throughout the film, including Kodak's 50 ASA 5245, Vision 200T 5274 and Vision 500T 5279 stocks; 35mm black-and-white infrared; 16mm reversal tungsten emulsions (125 ASA 7240 and 400 ASA 7250); 16mm negative stocks (7245, 7274 and 7279); 16mm black-and-white (7231 and 7222); and also some Super 8. To further enhance the uniqueness of each sequence, Sheehan also implemented every photographic tool and method at his disposal, including swing-and-tilt and snorkel lenses, and

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"The Arrow 50 retained the subtlety of control on the drag settings and kept functioning smoothly in the worst conditions".

Cinematographer Rory McGuinness made news recently when he was stranded for six weeks on an island in the remote Siberian arctic. While awaiting rescuers, Rory kept shooting the polar bear documentary in conditions that made incredible demands on crew and equipment.

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As Seen at **NAB**

time-lapse techniques.

Production consisted of two principle week-long shoots, each of which took place on opposing coasts: the first encompassed Los Angeles, the Mojave Desert and Las Vegas, while the second toured Manhattan, Long Island and Westchester. The remaining days were scheduled around Sheehan's commercial projects. If, for example, he was filming a spot in Roswell, New Mexico, Sheehan would scoot over to El Paso, Texas, afterwards to do some pickups. When his crew and equipment were stranded in Miami after a Burger King ad was canceled due to an impending hurricane, Sheehan had the chance to fly Bolger down for some crucial shots of Seed running into the ocean as the storm approached. "I just created opportunities around other paying film shoots that would bring me places," he explains.

This "anything goes" attitude continued in the lab, where substantial amounts of cross-processing and bleach-bypassing were done. Although leaving bleach on the original negative is more risky than doing so on a print, Sheehan felt that "since the film was a big experiment, I wanted to categorically just go for it." These processes result in some particularly striking images, such as surreal, high-contrast desert vistas with exaggerated blue and red hues, and shots of oversaturated, verdant Vermont foliage that practically leaps off the screen.

Since *Seed* was a constantly evolving work, Oculus permitted Sheehan to take his negative to a video print instead of to a neg cutter. During the printing process, lab timers could refer to the video as a means of gauging Sheehan's intentions with the wildly blown-out colors. According to the director, "Timers aren't used to negative that has been deliberately 'ruined' for a specific look. With the bleach still on, the film looks massively overexposed, but [with the video print] I could say, 'This is the look I want, and that's what we have to match.'"

During the telecine procedure, Sheehan and editor Albanese worked closely with Oculus. Managing director

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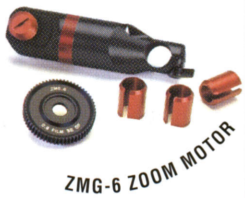

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Paco Carr recalls, "The amount of processing that went into the film-to-tape transfer was heavy — about 100 hours' worth. On top of that, we did a tape-to-tape color correction [with a Da Vinci color corrector] just to buff it out at the end." The production's on-the-fly style and troublesome locales (such as wind-strewn desert setups) necessitated more than 30 hours of "dust busting" in Henry and Inferno systems — to clean up specks, edge damage and scratches.

Oculus's participation did not end with transferring, conforming, and tidying up. Sheehan also sought a couple of visual effects that could not be achieved in-camera. In one scene, an interviewee wonders what inspired Wolfgang Amadeus Mozart to compose at age five: true to *Seed*s stream-of-consciousness narrative, Sheehan cuts away to an appropriate visual (developed with Oculus input) that combines three separate elements. On the production end, Dean Chamberlain is credited with "light painting"; he created a brilliant chromatic symphony by moving colored lamps around a dark room while a camera captured the kaleidoscopic scene with a wide-open shutter. The second element is a bust of the prodigious composer seen in shifting light and shadow. The third is a dark, intricately textured background designed by Oculus. The firm's team composited the three plates in Inferno and choreographed the sequence to a Mozart symphony, providing one of the film's most fanciful sequences.

Oculus also worked on a dreamy black-and-white scene at the film's climax, which reunites Seed with his deceased parents, who usher him into the family home and effectively bring him to "the other side." Sheehan envisioned a "collage of sound and voices," to which Albanese married the visual elements. Sheehan shot numerous takes of the same scene, all of which were later composited for a ghostly effect. "We did some video-resolution tests, and then some at low resolution," Carr recalls. "We worked for a long time to try and get the look and feel we all wanted. We did a lot of speed-

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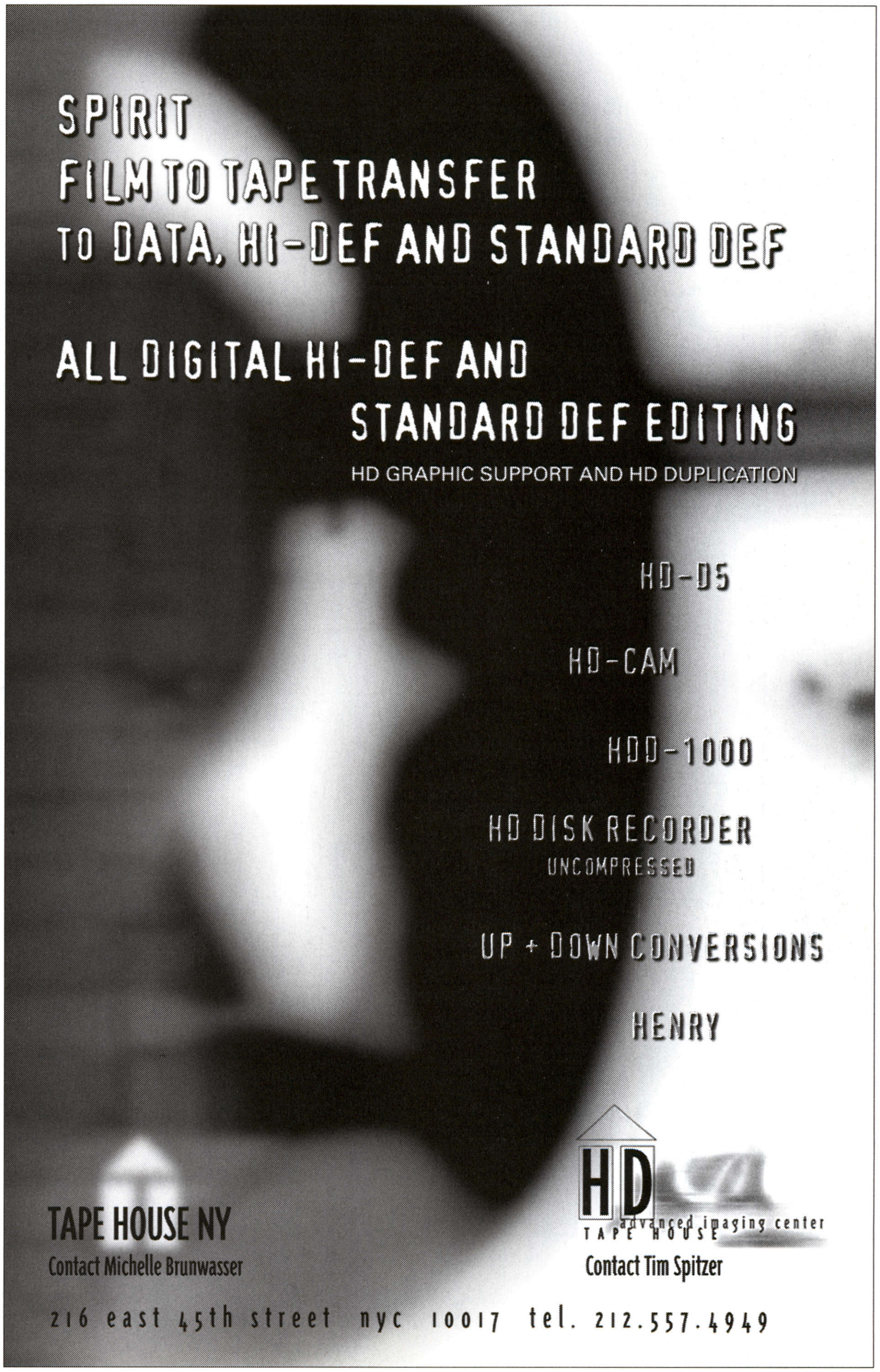

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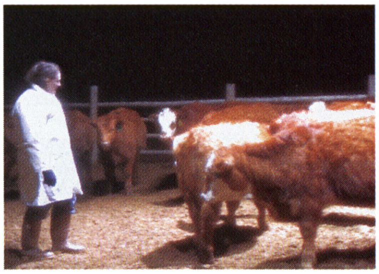
A series of clips from *Stairway to Heaven*, another Oculus project and a pilot for the reality-based TV series *First Person*. Directed by documentarian Errol Morris, this 27-minute piece examines a humane slaughterhouse for cows.

conforming and step-motion material, then composited 20 to 25 layers to come up with that." The industry rate for one day of Inferno work can be costly, but Sheehan found it affordable as part of a package deal via which Oculus handled all telecine, compositing, titles (on a Mac system), online work and audio mixing (at East Side, a sister company).

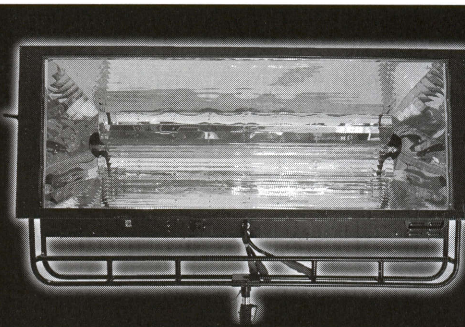
Like Sheehan's film, *Stairway to Heaven* incorporates many different formats, but the movie's makers were ultimately after a more streamlined look. This 27-minute short is the pilot for a TV series that Errol Morris is directing called *First Person*, which co-producer David Collins describes as "a reality-based *Twilight Zone* show." Slated for PBS in the U.S., and Channel 4 in the U.K., the show's first installment documents the work and worldview of Temple Grandin, an autistic Assistant Professor of Animal Science at Colorado State University who designs "humane" slaughterhouses for cows.



For the producers of *First Person,* time was of the essence. "The film had been cut, and we needed a print for the premiere at the Telluride Film Festival," notes Collins. "We had to deliver the film quickly and efficiently, while maintaining its beauty."

Cinematographers Ian Kincaid and Tom Krueger shot 35mm, 16mm (for the principle interview), Super 8 footage and digital stills, all of which Oculus had to combine and bring online. Carr believes that Morris admired Oculus's taste for projects "with a different flavor than what comes out of Hollywood." After the dialogue began between the filmmaker and the firm, "a great deal of mutual comfort was achieved in a very short period of time." Consequently, Oculus worked on a large part of the conforming process unsupervised — unlike on *Seed*, where Sheehan and/or Albanese sat in on virtually all sessions. "We're happy to work both ways," Carr maintains.

Images courtesy of Fourth Floor Prods.



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The capacity of digital post to accommodate many types of source material proved a major time-saver on *Stairway to Heaven*. During the course of one interview, Grandin likens a slaughterhouse complex to her own "Vatican City," so Morris wanted to insert a shot of the Papal palace. Appropriate footage was found on a stock reel, but it turned out to be from a VHS tape. Had the filmmakers been doing a straight negative cut, the time would have been taken to track down the shot's original source. But as Collins explains, "In the end, we didn't need to. We digitized the VHS, played with it a little bit, and out it went on the film."

Both Morris and Collins had previously done color timing exclusively in the lab, but the hurried schedule of *Stairway to Heaven* forced them into video post. Doing a composite, online and cleanup of the film and video footage offered them a much wider palette. Essentially, the finished print looks monochromatic, with unusual tints and color accents, a style which Collins insists originated in production. "In what had been shot, Errol had gotten some really wild colors and saturation," the producer explains. "In the digital domain, he was really able to heighten and extend that footage."

Oculus also performed time compression and expansion on certain shots to express how a hypersensitive person such as Grandin might perceive her surroundings. This process was additionally employed to allow the viewer to view the world through bovine eyes. After accomplishing these effects, Oculus had to homogenize Morris's desired color scheme throughout the piece. "Trying to conform [the various formats] into a singular look meant spending a lot of time on contrast ratios, grain, lighting and coloring," notes Carr. "It then became a process of extensive tape-by-tape, scene-by-scene color correction." The images were transferred back onto 35mm through a 2K film recorder. Observes Collins, "Going back to film took the look into areas where we weren't sure what was going to happen, but it worked out."

Oculus also handled dust-busting, technical cleanup, audio mixing and title design on *Stairway to Heaven*. (in fact, the firm's extensive participation in the Morris short is acknowledged with a front-end credit). The titles were composited optically onto film, instead of being transferred from video along with everything else. Carr explains, "We didn't want the titles to degrade, as they frequently do when you bump them from digital format."

Clients will occasionally, approach Oculus with unwavering instructions, but the makers of *Seed* and *Stairway to Heaven* wanted the company to bring its creativity to the table. Carr concludes, "The most rewarding part of the job is when somebody says, 'What do *you* think we should do?'" ■

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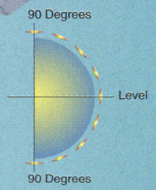

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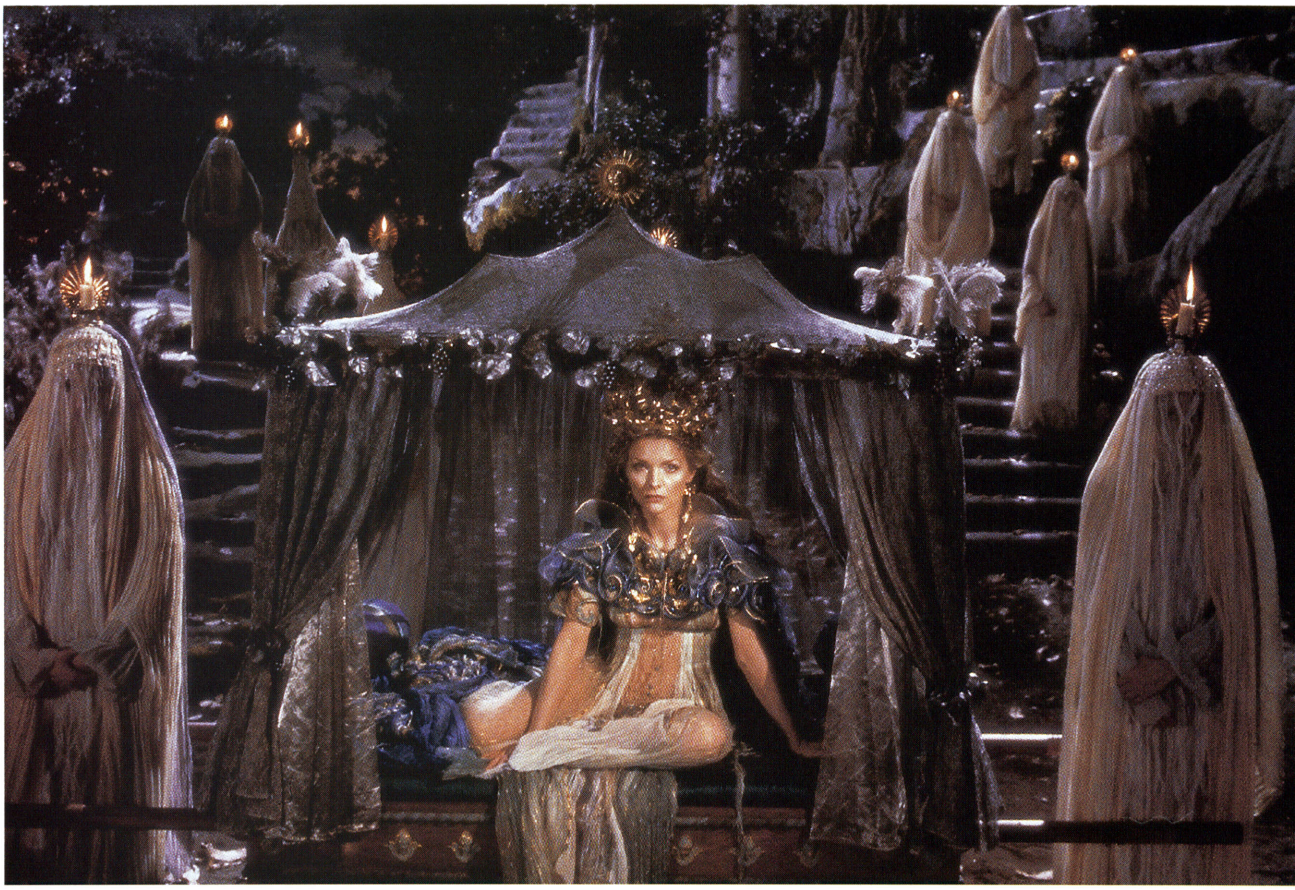

Enchanted Forest

Director Michael Hoffman and cinematographer Oliver Stapleton, BSC transport Shakespeare's witty sendup of romantic longing, *A Midsummer Night's Dream*, to turn-of-the-century Tuscany.

by Chris Pizzello

Photography by Mario Tursi

The granddaddy of all romantic comedies, *A Midsummer Night's Dream* is one of those Shakespeare titles that filmmakers can't seem to resist. The Bard's breeziest confection has been transferred to the big screen a whopping eight times, but its bizarre stew of erotic longing, mischievous comedy and sudden flights of surrealism has proven to be a rather treacherous cinematic balancing act.

The latest attempt to capture the play's effervescent spirit on film is the fourth collaboration between cinematographer Oliver Stapleton, BSC and director Michael Hoffman — a rather surprising string, considering the duo's decidedly inauspicious introduction.

Stapleton, a British National Film School graduate, had been shooting mainly television and music videos when he was suddenly presented with the opportunity to travel to Scotland and shoot his first feature, *Restless Natives,* in 1984. His surprise at being asked to shoot a feature was compounded when he learned that director Hoffman was also a first-timer. "There had been some sort of drama, and the original cameraman had dropped out in a hurry," Stapleton recalls. "They needed someone to replace him fast, and the insurance companies basically didn't have enough time to say

Photos courtesy of Fox Searchlight.

no, as they usually would to first-time cinematographers — especially if they're also working with a first-time director.”

Given these circumstances, it's hardly surprising that the *Restless* shoot proved to be a rocky affair for both director and cinematographer. “I found Michael to be a very intense person to work with, both emotionally and intellectually,” Stapleton says. “We were both young and inexperienced, and consequently quite volatile. The shoot was actually quite a strain, and by the end of the film, both he and I felt that we really didn't want to see each other again in this lifetime!”

Stapleton and Hoffman's career paths diverged until a decade later, when producer Andy Patterson approached Stapleton with the script for *Restoration*, an ambitious film set in 1660s England. “I had heard about the script, but I initially didn't pay any attention because I knew Michael was directing,” Stapleton recalls. “I knew he would never want to work with me again, and I didn't want to work with him again. But Andy was very persistent, because Michael was really struggling to find a cinematographer. Eventually, I said okay, and got on a train to visit Michael at his office in London.

“Then an extraordinary thing happened. I walked into his office, and it was really nice to see him. We immediately started a very long conversation. It went on and on and he ended up cancelling the rest of his appointments for that day. I can only put [our initial clash] down to the fact that we'd both been 10 years younger and a lot more nervous. Somehow the experience of Michael having made more films and my having shot more films meant that we had advanced to a psychological place that made our relationship much more satisfying and creative. We went on to make *Restoration*, which was an extraordinarily interesting experience for both of us, and became great friends.”

Restoration went on to win Oscars for costume design (James Acheson) and production design (Eugenio Zanetti), but Hoffman feels that Stapleton's cinematography was the film's true triumph. “I suggested to Oliver that we use paintings from the 17th Century as a visual reference for *Restoration*, and I think that idea really inspired him,” the director comments. “I think he surprised himself with the effects he was able to achieve and the beauty he was able to create. We didn't have very much money, and if the sets had been lit the wrong way — not to take anything away from Eugenio's design — they could have been shown up for what they really were. It was all about the way Oliver ‘painted’ the sets, the way he kept light *off* of them. We also decided to use candles as main sources, which is much more time-consuming than using soft light with some candles scattered about. It was very tricky and delicate work, because Oliver used so many hidden instruments. Gabriella Pescucci, who did the costumes on *A Midsummer Night's Dream*, was particularly pleased to work with Oliver because she said the lighting in *Restoration* was the most beautiful she'd seen in a movie in 10 years.”

Among Stapleton's other credits are eight films with British director Stephen Frears, including *My Beautiful Laundrette, Prick Up Your Ears, The Grifters* and *The Hi-Lo Country*. He has also photographed Robert Altman's *Kansas City* (see *AC* Sept. '96) and the upcoming Lasse Hallström film *The Cider House Rules*. Additional titles on his resumé include *Let Him Have It, The Object of My Affection, The Designated Mourner, She-Devil, Danny — The Champion of the World* (which garnered an ACE Cable Award nomination) and the sci-fi comedy *Earth Girls Are Easy* (which earned the cameraman an Independent Spirit Award nomination). Stapleton and Hoffman last teamed up on the romantic comedy *One Fine Day*.

The latest version of *A Midsummer Night's Dream* was adapted for the screen by Hoffman himself, who has had a long relationship with the play. A Rhodes Scholar and Idaho native, Hoffman directed a production of *Midsummer* while studying Renaissance drama at Oxford University. He is also one of the founders of the Idaho Shakespeare Festival in Boise, and starred as Lysander in the Festival's inaugural production of the play.

Hoffman's screenplay placed Shakespeare's colorful circle of lovestruck nobles, actors and sprites

Opposite: The sultry Titania (Michelle Pfeiffer), Queen of the Fairies, contemplates the recent turn of events in her kingdom. Below: Titania and Oberon (Rupert Everett) share a moment of passion.

A pair of mischievous fairies peer into the Magic Forest. While creating this fanciful realm, production designer Lucianna Arrighi had real trees brought into Soundstage 5 at Rome's fabled Cinecitta Studios.

into a previously untapped milieu: Tuscany at the turn of the 19th Century. "While we were making the film, I asked Michael if he'd had any alternative ideas for the setting," Stapleton relates. "He said he'd been torn between what we eventually did and another idea to set the story in 1960s London! I think they were both very strong ideas. I could really see *A Midsummer Night's Dream* working in the psychedelic world of Swinging Sixties London. But after Baz Luhrmann's recent [modernized screen version of] *Romeo and Juliet,* he might have been accused of jumping on a trend and doing another wacky update of Shakespeare. Michael also spent some years during his early twenties living and working in Tuscany, so he knows the place and clearly has a great love of the Italian way of life."

Hoffman also perceived an interesting contrast between the lovers' gradual shedding of inhibitions and the Victorian era's restrictive social mores. "The play is really about the breakdown of conditioning and conditioned responses," he offers. "I very much liked the idea of these Victorian costumes being destroyed. All of the high necklines, long sleeves and corsets could come off in the forest as a visual complement to the idea of the breakdown of conditioning. The choice of the time period had a certain amount to do with that.

"Also, when I lived in Italy, I always watched these groups of older men who inhabit the little towns. They've grown up together and had certain dreams, most of which haven't come true. They're very much bonded to one another, even though they argue and fight all the time. The bond between them is so deep that it's beyond ever needing to pay a compliment to each other or express affection. When I'd see a group of five guys sitting around a well in a Tuscan square, I could immediately identify them with the struggling local actors in the play."

The filmmakers' main challenge was to marry the light, comedic elements of the script with the nocturnal Magic Forest setting, where the various pairs of lovers find themselves at the mercy of mischievous fairies. "The biggest single decision we faced was, 'Do we shoot this on location or in a studio?'" Stapleton recalls. "After trekking around a lot of woodlands in Tuscany, we realized that it was more a practical decision than an artistic one — spending 40 nights in the woods doing Shakespeare just wasn't feasible. It would have been freezing cold and we'd never have gotten the conditions we needed. We also realized that real woods presented a tremendous control problem in terms of lighting. We didn't want to have dark, blue moonlight throughout an hour-and-a-half-long comedy. Therefore, the issue became how to design lighting that wouldn't have the look of a Disney film. We still needed to see the characters, though, because it's a comedy and the audience has to feel that the woodland is enchanted."

Retreating to the legendary Cinecitta Studios in Rome, where Federico Fellini directed some of his most dazzling works, Stapleton and Hoffman went about creating their own Magic Forest. "One of the first things we discovered was that Lucianna Arrighi, our production designer, couldn't afford to build the woodland from scratch," Stapleton says. "Instead, Luciana had real trees brought into Soundstage 5. It's cheaper to do it that way, but it's also a nightmare, because the leaves can fall off or change from being glossy, watery things to dead, horrid, crispy things. After looking at tests, we decided to paint all of our branches, leaves and trees. The trunks of the trees in particular were very dull and boring in tests. The green and brown colors of trees in woodlands really absorb light, so they tend to look dead on film. I think just about every cinematographer has been caught shooting dead forest at night. It's a very tricky photographic thing, because when you look at it by eye, you think, 'That looks all bright and nice!' Then you photograph it, and it barely shows up on film."

Stapleton was also inspired by some of the simple, homespun effects in director Max Reinhardt's 1935 film of *A Midsummer Night's Dream* (photographed by Hal Mohr, ASC). "One of the reasons Michael wanted to make this film was that he didn't think any of the previous movie versions of the play were any good," he states. "But I thought the 1935 film was kind of interesting from a photographic standpoint. An operator friend of mine, Chris Lombardi, faxed me a magazine article in which Hal Mohr talked quite extensively about tricks they had used in the film. They put sparkles and diamonds all over the leaves and trunks to make them look as if they had some life. I showed the article to Lucianna, and we ended up using little sequins and reflective materials for highlights on our leaves and trunks. Photographically it's very subtle but quite effective; the audience is not going to come out of the theater saying, 'Gosh, what were they doing with those trees?' The highlights we added made the light and environment much more substantial and magical, which is what you're trying to do with *A Midsummer Night's Dream*."

The huge set was split into two entirely different segments — the kingdom of Oberon (Rupert Everett), a great valley where former Etruscan temples and tombs are overgrown with roots and greenery, and the feminine world of Titania (Michelle Pfeiffer), Queen of the Fairies, a more densely wooded classical temple. Hoffman and Stapleton decided to further delineate the two worlds by designing completely different lighting schemes for each. "In broad strokes, we decided that we'd give the female world of Titania a warmer look," Stapleton details. "The background trees and darkness would tend to be on the cooler side, but the faces of the characters in the foreground would stay warm. I used either a ¼ or ½ CTO on the foreground lights in Titania's world, in contrast to the clean blue backlights

Puck (Stanley Tucci) and Oberon spy on their fellow forest-dwellers.

with no gels. For the male world, however, we went with an overall cooler feeling — a more blue look, although we never went to actual blue. There, we used either a ¼ CTO on the foreground lights or nothing at all, depending on the scene. We opted for what I call a kind of permanent twilight, so it never really felt dark. It was extremely important to us that the audience would never have to screw their eyes up to peer into the screen, because it's so counter to comedy to do that. Since the movie takes place over one night, we also decided that the weather should change quite a bit. I used varying degrees of smoke and atmosphere; some sections of the wood would be clear and others not as much, so that we'd have some texture and variation in this one woodland setting."

Still, Hoffman knew there was something missing when he studied Stapleton's tests. "I knew that the forest was *supposed* to feel artificial," he says. "The lighting concept was intentionally very artificial, with these very warm golden night exteriors, so I wasn't bothered by that. And then Oliver figured it out. He said, 'Nothing's moving.' And that was a major, major [discovery]. How are we going to make the forest move, yet not ruin the dialogue?"

Stapleton's solution was a simple but effective illusory technique known in England as "dingle" lighting. "In England, when you set up a branch in front of a source and you get the shadow of a tree, we call it 'dingle,'" he describes. "In both of the forest worlds, dingle was one of the psychological tricks I used to make the scenes feel like night without going too dark. That way, I could use directional light that would feel like moonlight, rather than just having soft light blasting all around the place. Through the whole movie, I could be seen carting around dingle number 1, dingle number 2 and so on, like a kit of gels. I had branches of certain leaves and certain shapes that I would use in different situations, depending on whose face was in the scene and what kind of effect I wanted. I don't think I made a single shot throughout *A Midsummer Night's Dream* without some sort of branch in my hand!

"We then had to figure out how to get a sense of movement in

Director of photography Oliver Stapleton's lighting lends the feel of a classic Dutch painting to this scene, in which servants prepare a feast for the wedding of Duke Theseus.

the frame. Fans make too much noise, particularly the ones they make in Rome! Instead, we had dozens of Italian crew members holding pieces of wire strung between all of the leaves and trees, and they would shake them to make the woodland move. They did this for weeks on end, which was quite tedious! But I had to make sure that was always happening, because if there was no movement in the trees, the scenes immediately felt quite dead and stagey."

Lights were also physically moved to add to the illusion of activity in the woods. Crew members in lighting grids panned an array of tungsten lights (ranging from 2Ks to 24Ks), and moved large gobos (with branches draped over them) across the light during various shots. "Night in the movie is moving nearly all the time," Stapleton says. "I wanted the woods to always seem alive, as if some person, creature or troupe of fairies might appear at any time. We were working in an incredibly artificial environment, but when we combined the costumes, the set design, the light and the movement in a certain way, it all sprang to life."

Stapleton added further dimension to the woods by using powerful Jumbo lighting units provided by the Rome-based company Iride, which is run by Vittorio Storaro, ASC, AIC's longtime gaffer, Pippo Cafolla. The cinematographer explains, "They're basically aircraft landing lights — giant, 36-kilowatt lights which are very strong because they have 36 bulbs in them and they're very spotty. They cut through atmosphere, smoke, branches, leaves and trees, and gave me highlights of leaves that are completely unique to that type of light. These lights were so strong and directional that they made 20K or 24K tungstens look like babys in comparison. Since they're very hard lights, I used them to make the moonlight beams and the backlight. They also solved the problem of making the backlight cooler, since they were near 3400° Kelvin."

The cinematographer also quickly realized that such a concentrated beam could be cleverly used to lend Michelle Pfeiffer's Titania an otherworldly aura. "Michelle was definitely the leader of the 'magical people' in the film," Stapleton says. "As a major figure in the film business, she also is referred to as the 'Queen of Hollywood,' I believe! I felt strongly that she should have a fairly unreal, magical, over-the-top feeling about her. Generally speaking, I don't use much diffusion, but I decided to diffuse her close-ups in a way that was almost noticeable, so that the audience would definitely have the feeling of being introduced to someone special. This wasn't your average fairy, if you like! I used a combination of the ¼ ProMist and a ½ Tiffen FX, which would vary a bit depending on the shot. To top it off, she was given a very strong-edged backlight from one of those 36-kilowatt Jumbo lights."

Hoffman enthusiastically encouraged Stapleton to push his lighting to fantastic extremes since, as its title suggests, *A Midsummer Night's Dream* isn't bound to any sense of objective reality. "Right from the first dailies, we steered the movie towards the look of Thirties Hollywood movies," Hoffman says. "It had to do with how Oliver deals with backlight, and how he uses lights in exteriors in really clever ways. I said to him, 'I don't know exactly what you're doing, but it's feeling to me like *The Wizard of Oz*.' I just really loved it. And he said to me,

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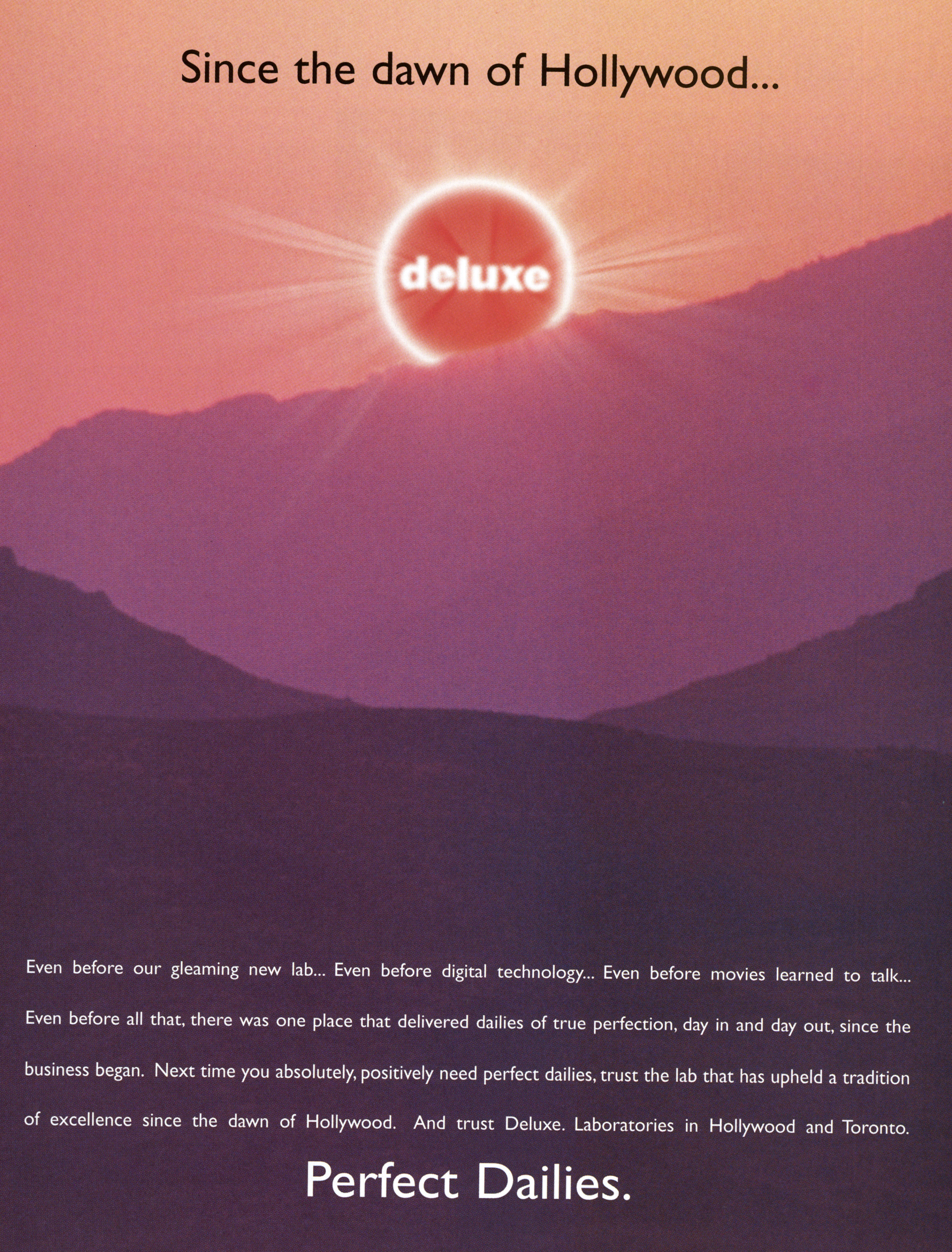

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Above: Stapleton notes that the decision to film the Magic Forest in a studio was a practical one: "Spending 40 nights in the woods doing Shakespeare just wasn't feasible. It would have been freezing cold, and we'd never have gotten the conditions we needed. We also realized that real woods presented a tremendous control problem in terms of lighting." Right: Director Michael Hoffman discusses the scene at hand with nattily attired actor Kevin Kline.

'I don't know exactly what I'm doing either, but I think we should keep experimenting with it.' That led to this very glamorous, old-fashioned look for Titania."

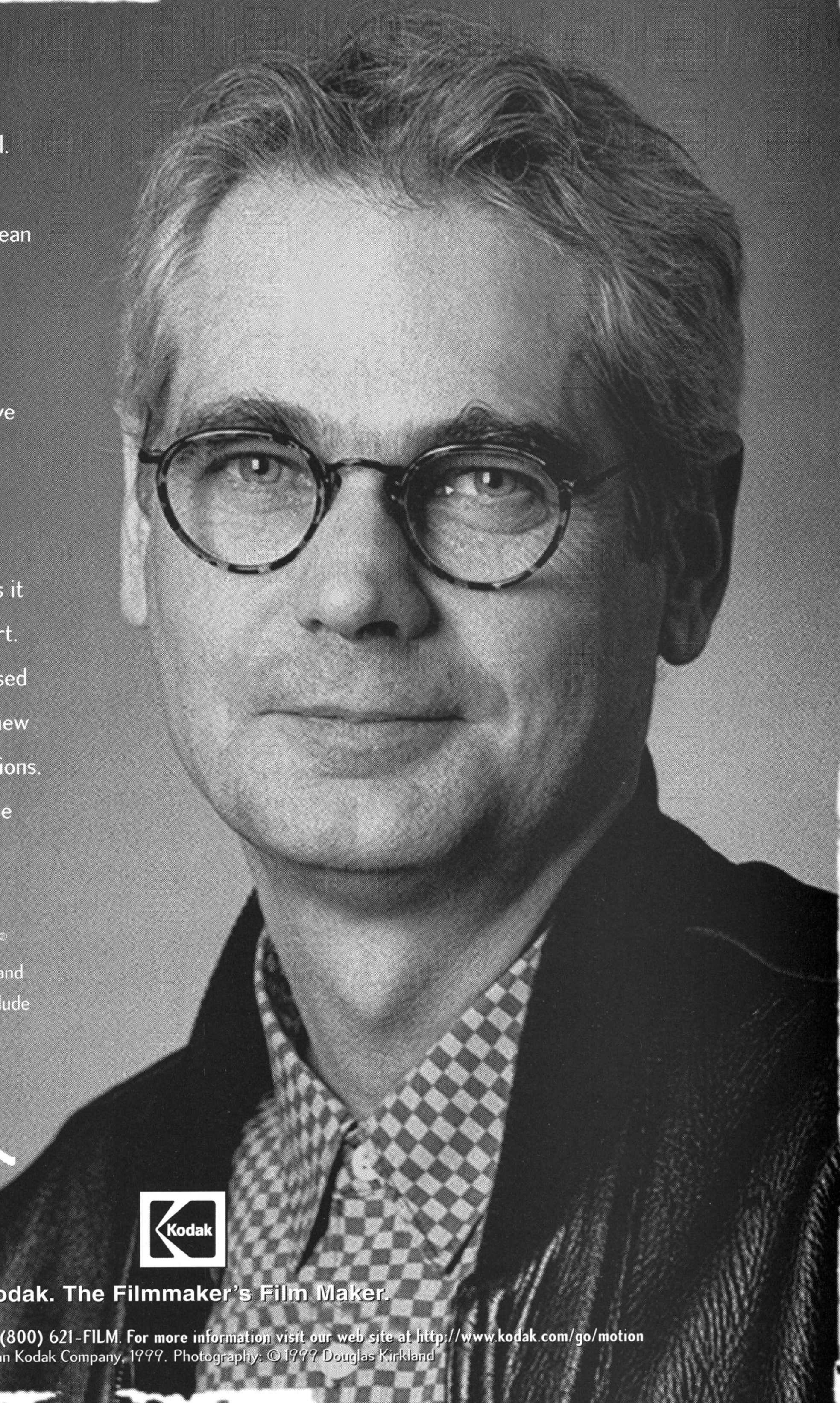
While the lively, magical feel of Titania's world provided plenty of motivation for Stapleton to paint scenes with light and movement, the moodier, more sparsely decorated Oberon set called for some compensation. "Oberon's world had very few trees, so there was much less excuse for light and shade," he explains. "There were also a lot of plain, hilly Polystyrene surfaces on the set that had to look good. I wound up putting the gobos up in the air out of shot, using the motion of passing clouds as an excuse for moving the light. I didn't have much excuse for using dingles, but I did it anyway — I just cheated a bit! There were a few trees there, but they weren't the kind of trees we'd seen in the other set. The movement of the light in Oberon's world is more farfetched, but without it, it would look very static and stagey. If we'd had more money, I would have loved to have put in a proper 'moving clouds' system."

In addition to the weeks of work inside Cinecitta Studios, the production was granted permission to use several beautiful Italian locations, such as the Villa d'Este in Tivoli, where the interiors of Theseus's palace were filmed. Scene painters added a fresco portraying Cupid's exploits to the magical frescoes of forests and rivers that already adorned the site. "The main challenge in the Villa d'Este was getting the right degree of softness between the characters and the background," Stapleton recalls. "If you're photographing actors in front of paintings or painted walls where there are a lot of faces, you've got to work out the degree of sharpness you want. Obviously, you don't want to throw the frescoes so out of focus that you can't see them, because that's why you've paid all that money to go there in the first place! But you also don't want the faces of the paintings competing for attention with your actors. In that particular location, the paintings on the wall were quite soft and muted, in terms of their style and colors. It was therefore possible to photograph them much more sharply than I could have if we were in the newly restored Sistene Chapel, or someplace that had very bright colors and sharp edges.

"The balance between the dialogue and visuals is very crucial, especially in Shakespeare, so you can afford to be more oblique visually if you've got a lot of talking going on. Because the audience is listening hard, you don't want the pictures to overwhelm the speech. That's why I

ON FILM

CALEB DESCHANEL, ASC



"There's a real mystery to the process of making movies that's almost mystical. You have to begin with a great script, director and actors, but that doesn't mean you are going to make a great movie. Truly great movies reveal something about our humanity. I think it serves an important purpose for people to have that experience. The cinema is where most of us experience our art. Cinematography is like playing music. It can be technically perfect, but unless it evokes an emotional response it isn't art. I truly love those moments when I've used everything I know, and try something new that somehow rises above my expectations. I always want to push things to the edge without falling off."

Caleb Deschanel, ASC, earned Academy Award© nominations for *The Right Stuff*, *The Natural*, and *Fly Away Home*. His other narrative credits include *The Black Stallion*, *Being There*, *Hope Floats* and *Message in a Bottle*.

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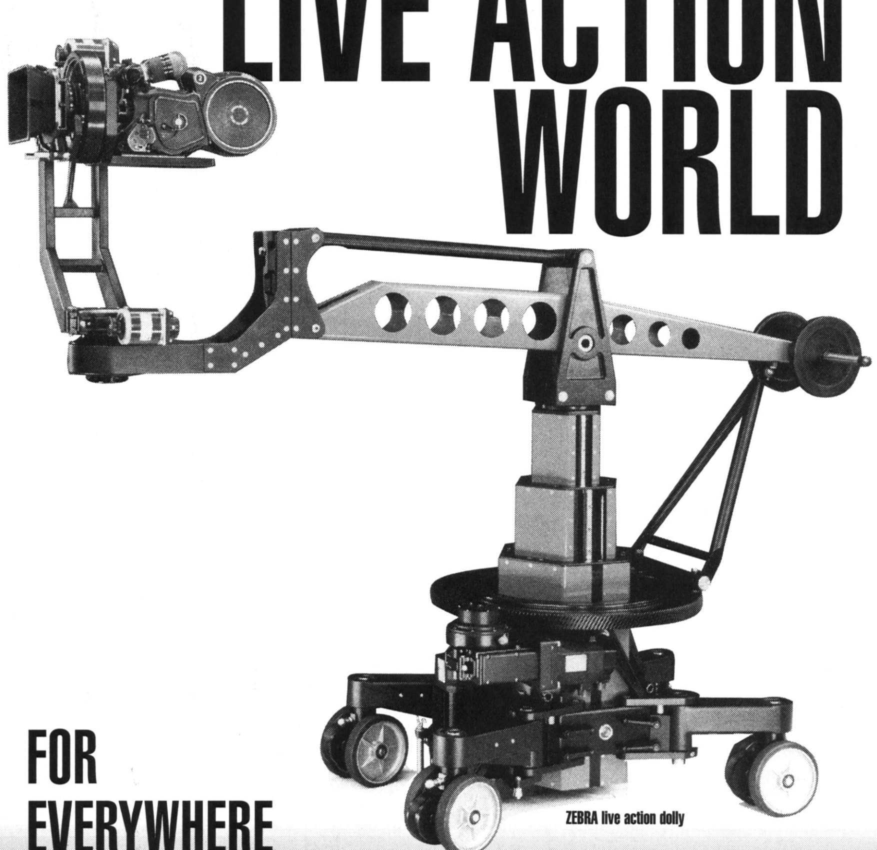
will always grade a film with sound. Some cinematographers like to time a film silently, and I'm not sure why. When I've timed a movie with no sound, I've tended to make the scenes brighter. You're seeking information from the pictures, and you're bound to feel differently about a scene if there's no sound."

The wedding feast of Duke Theseus (David Straithairn) and Hippolyta (Sophie Marceau) was filmed at the Palazzo Fornazzi in the town of Caparolla. Stapleton had to figure out how to handle the sun's progression for a scene in which several characters converse around a large table as an entire day passes. "To prevent the bad things the sun could do all day, we put up a big silk awning that was incorporated into the production design," he explains. "I'd remembered a similar situation on a previous film I'd photographed called *She-Devil*, and mentioned the idea of the awning to Lucianna. I ended up using very little light on the actors, because the actual sun hit this awning and was diffused beautifully.

"I knew that at about five in the evening, the hallway where the table was would go dark. [Gaffer] Alex Scott and I arranged to bring in 6K, 12K and 18K HMIs to shine through the silk and replace the real sun. We planned the day so that we could do all the shots that showed the real landscape behind the characters first, and then concentrate on the shots toward the table when it got darker. The only problem left was creating the reflection of the sky in the windows. We ended up putting up big silks and shining lights through them [to represent the sky], and it worked just fine."

Romantic comedies are rarely shot in the lush anamorphic format, but after looking at tests, Hoffman and Stapleton both agreed that the 2.35:1 aspect ratio was the right aesthetic choice for *A Midsummer Night's Dream*. "One of the things Oliver and I agree on is to leave certain decisions up in the air until we see [footage] on a screen," Hoffman explains. "For *Restoration*, we'd been sure that we were going to shoot in 'Scope — we'd even already ordered the lenses. But when we studied the tests, we noticed that the close-ups in 1.85:1 format brought us closer to the world of 1700s portraiture that we'd studied in preproduction. At the last minute, we abandoned 'Scope and shot the movie in 1.85. It was just as obvious in the tests for this film that 'Scope was the answer. We're so used to seeing landscape movies in 'Scope that it helps fool the audience into thinking they're outside when they're really looking at a very artificial set. I thought that was fascinating — I



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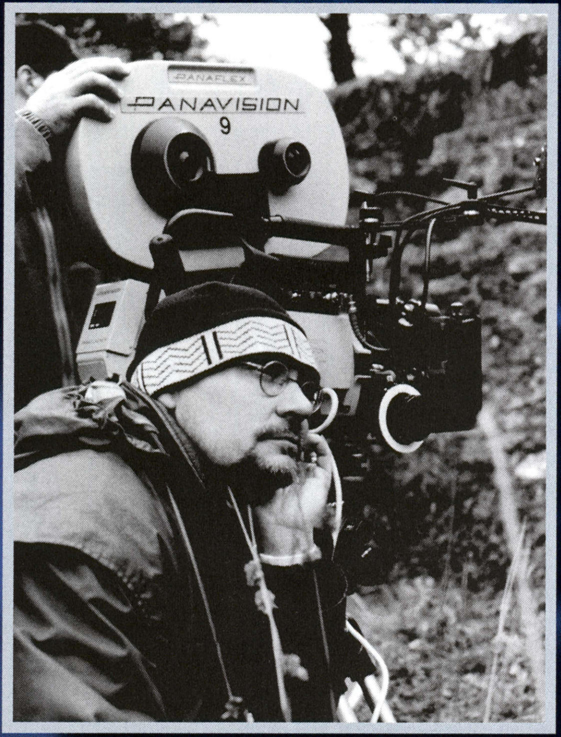

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Crew members prepare for action on one of the film's elaborate interior sets. To capture the full impact of the artfully designed environments, the filmmakers opted to shoot *A Midsummer Night's Dream* in the widescreen anamorphic format.

didn't expect this illusion of being in nature."

Just prior to shooting *A Midsummer Night's Dream*, Stapleton had photographed Stephen Frears's western drama *The Hi-Lo Country* with English equipment designer Joe Dunton's anamorphic 2.35:1 Research lenses, and he simply carried the same set over to Italy. "I'd fallen in love with the 2.35 format again on *The Hi-Lo Country*," he says. "I suggested to Michael that since we were dealing with a Shakespeare play, maybe 2.35 would really separate it from the theatrical experience and make it a 'movie movie.' He was very supportive of that idea. Joe's lenses are based on the old Cookes, and the nice thing about them is that they're so small and light that you can put them on a Steadicam without changing lenses. They also close-focus to about three feet, which is great. One of the problems of anamorphic is that a lot of the lenses don't close-focus, which obviously is a big problem on a Shakespeare film."

Given the filmmakers' decision to shoot in 'Scope, Stapleton

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didn't worry too much about using a higher ASA stock, and the resulting grain. "The great thing about anamorphic is that since you're only using the big part of the negative, grain really isn't an issue," he points out. "The interiors were all shot on 500-speed Kodak [Vision 500T 5279] stock. I originally toyed with idea of shooting them on the 320 [Vision 320T 5277] stock, but then I discovered that to get the kind of image I wanted, I would have to shoot it at 200 ASA. And then I was winding up at too shallow a stop, a T2.8, when I wanted to shoot near a T4. In the end, I decided on the 500. The day exteriors were shot on Vision 320, rated at 200. It's a softer stock, and it gave us a nicer feel."

Stapleton used a pair of his own Moviecam Compact cameras on the production, in addition to an Arri 35-III for second-unit work. "The Moviecam is a very versatile camera," he comments. "It's just as easy to shoot handheld as it is to put it on a tripod or a Steadicam. In addition, it's really quiet. We used the two Moviecams simultaneously quite a bit. Since it was Shakespeare and there was a lot of dialogue, we were able to do wider and tighter shots together, although once I'm indoors I find that using two cameras is usually a problem."

In the hands of undisciplined filmmakers, the crazy-quilt of dense plotlines and fantastic settings in *A Midsummer Night's Dream* could easily tip over like an overfrosted wedding cake. Stapleton felt a refreshing sense of creative freedom working on a text that spurned rationality in a carefree way, but he acknowledges that the situation also called for a firm sense of self-restraint. "At the beginning of the film, Michael and I looked at each other and said, 'Well, this has nothing to do with realism!'" the cinematographer recalls. "I've made a lot of hard-edged, documentary-style films such as *The Grifters* and *My Beautiful Laundrette*, in which you try to make the cinematography look as if you just pitched up your equipment and started shooting. This movie was completely the opposite. The only problem with an 'Anything goes' [aesthetic], of course, is that everyone can go tremendously over the top. You just have to make hard decisions about the world within the film. For *A Midsummer Night's Dream*, we didn't say 'Anything goes,' but rather, 'This is non-naturalism.' We put a cross through the concept of blue moonlight, and just decides that the woods didn't need to feel like a real place in this particular film. It was very liberating." ■

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Flesh for Fantasy

David Cronenberg and Peter Suschitzky, BSC take a field trip to the frontal lobes in *eXistenZ*, a cerebral thriller about the encroaching dominance of the virtual world.

by Eric Rudolph

Photography by Ava V. Gerlitz

In writer/director David Cronenberg's new film *eXistenZ*, computer gaming devices have been replaced by living game servers grown from fertilized amphibian eggs stuffed with synthetic DNA. The powerful game software is downloaded directly into players' spinal cords, where the neural net code interacts directly, and often devilishly, with the central nervous system.

The resulting game experience, powered by the players' mental energy and directed by their emotions, fears and fantasy lives, is so strange and convincingly realistic that participants are often unable to distinguish between what is real and what is not.

Set at an undetermined point in the near future, the world of *eXistenZ* appears at first to be a quiet, simple, low-tech universe. This is partially because pulsating organic devices have largely replaced electronic hardware, and also because the virtual gaming world has become much more compelling than reality.

As a result, most people tend to stay at home plugged into their various game devices. When protagonists Allegra Geller (Jennifer Jason Leigh) and Ted Pikul (Jude Law) pull up to a deserted ski resort, Pikul asks why there is no one around. "You don't think anyone actually skis for real anymore, do you?" Geller replies.

Allegra Geller is the daring, cutting-edge creator of a much-anticipated new game called "eXistenZ" — and as such, she is also

Photos courtesy of Dimension Films.

the hip, glamorous high priestess of the bizarre new gaming culture. As the film begins, Geller is unveiling the groundbreaking title game during a super-secret meeting at an old country church. As an eager group of beta-testers begin downloading eXistenZ through their spinal bioports via flesh-like "umbicords," an assassination attempt is made on Geller by a member of a fanatical anti-gaming resistance movement determined to preserve "reality."

Geller barely escapes in the care of Pikul, whom she assumes to be a bodyguard assigned by her game distributor. However, the jittery Pikul soon confesses that he is really a neophyte marketing associate, causing Geller to exclaim in dismay, "I'm being protected by a P.R. nerd!"

Fearful that her one-and-only eXistenZ game server may have suffered damage during the attack, Geller convinces the very reluctant Pikul to let a seemingly deranged country gas station attendant (Willem Dafoe) install a bioport in the base of his spine with a dangerous-looking gun-like implantation device. Once this bit of amateur surgery is complete, they can run the game (which requires at least two empathetic players) and determine if the pod is damaged. From this point in the narrative, the onscreen game of eXistenZ begins.

For the fifth time, Cronenberg has enlisted director of photography Peter Suschitzky, BSC to help create another of his strange but realistically dislocated worlds. Their previous works together are *Crash* (see *AC* April. '97), *M. Butterfly*, *Naked Lunch* and *Dead Ringers*, while the British cameraman's other diverse credits include *Valentino* (*AC* Nov. '77), *The Rocky Horror Picture Show*, *The Empire Strikes Back* (*AC* June '80), *Immortal Beloved*, *Mars Attacks!* (*AC* Dec. '96) and *The Man in the Iron Mask.*

The duo's collaboration is always a close one, and normally begins at the very start of preproduction, if not sooner. As Cronenberg explains, "Peter is part of the basic team that I use to develop the projects from the beginning," along with production designer Carol Spier and editor Ronald Sanders. "This early involvement is especially important on a film such as *eXistenZ*, in which you are immersed in an alternate reality; all of the textures, as well as the feel and tone of the film, are important parts of the story. And once we start production, Peter and I collaborate on a detail-by-detail basis."

Opposite: Game designer Allegra Geller (Jennifer Jason Leigh) clutches her fleshy control pod, which contains the only working version of the eXistenZ program. Cameraman Peter Suschitzky paid special attention to modeling the actors' faces. This page: Geller and gaming novice Ted Pikul (Jude Law) search for clues within the VR world of eXistenZ.

Despite their intense collaboration, Cronenberg notes rather paradoxically that there is never any all-encompassing scheme behind the pair's photographic approach. "Peter and I have often thought that we should develop some grand, overarching conceptual visual approach for each movie, but we never do. The reason is that we actually work in the same way; we're both very instinctual and hands-on. Our approach to filmmaking is tactile and sculptural, and it needs to evolve throughout the process."

However, the closely attuned filmmakers have occasionally disagreed on the very basics of their respective visual approaches to the bizarre worlds portrayed in their films. Suschitzky relates, "I've sometimes suggested to David that it might be interesting to have a more extreme design and photographic approach, but he's always been quite definite about wanting a realistic, normal look and background for the stories."

Cronenberg concedes that "there are many tricks, especially if you're doing science-fiction, and I try to avoid those tricks. I want the visual landscape to be subtle and not look dated in five years. So, for me, giving the film something of an off-kilter, unsettling look will often come down to a choice of unusual lenses or camera angles."

On *eXistenZ*, Suschitzky's interest in photographic extremes bore the guise of simplicity. Once production began, the team chose a single lens and stayed with it throughout the shoot. "We shot everything, except for three or four inserts, with Panavision's 27mm T1.9 Primo lens," the cinematographer reports. "It was a stylistic choice; sometimes it was difficult to make it work, but it always seemed to pay off. Our approach gave *eXistenZ* a visual unity and a slightly odd feeling that hopefully will be effective but not too obvious." He quips that "someone could have sent all of the other lenses back and we wouldn't have even noticed."

Because the wide-angle lens was used for nearly every shot in the film, the team ran the risk of ending up with distorted facial features in close-ups, but deftly sidestepped than pitfall. "We didn't want to use

Pikul and Geller drift into a VR-world dreamstate while linked to the eXistenZ game pod. Director David Cronenberg and production designer Carol Spier determined that using patternless materials in the performers' costumes would subconsciously suggest the polygonal design structures seen in actual video games.

the 27mm lens to distort, so we let the faces breathe," explains Cronenberg. He elaborates that "for most of the film, these characters are in a world created by their interaction with the game pod, so their surroundings — things like the texture of the walls or the feel of a chair — are important to the story. We therefore didn't want to isolate the faces with tight close-ups."

Keeping his camera a bit further back from his subjects was no chore for Suschitzky. "I don't like going too close, and I especially like to avoid excluding the hairline; it's just a personal choice," he says. "Cropping off the hairline is what I think of as a 'TV shot,' an attempt to make the small screen look bigger."

In depicting a world in which everything is slightly off-balance, the director and cinematographer decided to keep their framing off-kilter as well. "We tried to offset the compositions," confirms Suschitzky, who also operated on the picture. "For example, if someone was looking left to right, we'd put them on the right side of the screen, to lend the scene an edgier feel."

Despite the unusual nature of the story, the off-balance compositions and the consistent use of a wide lens, *eXistenZ* has a lush, comforting look that features deep, rich colors, and soft but highly modeled light that often seems to caress the actors. Was this look designed to help the viewer exist comfortably in this disorienting, kaleidoscopic world? "It wasn't a deliberate stylistic choice to make *eXistenZ* look comforting, but it may have arisen subconsciously," the cinematographer allows.

One of the most compelling aspects of Suschitzky's photography in *eXistenZ* is his artful modeling of the soft light. "Peter is wonderful with modeling and texture," Cronenberg enthuses. "As a consequence, I often have to fight my way to the actors through all of the flags, gobos, stands and screens. It's worth it, though; the modeling in *eXistenZ* adds tremendous texture and depth and an almost three-dimensional quality."

Suschitzky explains that "my attention to detail in the modeling of the faces is another attempt to enrich the look of the film, to create something that's visually interesting and will add to David's desire for a lived-in, familiar setting."

Cronenberg also feels that Suschitzky's detailed approach helps to convey the complicated world of *eXistenZ* with a minimal amount of verbal exposition. "Peter's lighting helps tell the story to such a significant degree that I was able to cut a great deal of exposition that we had actually shot, material that explained how these various biologically-based inventions work. A lot of the storytelling details are pictorial, and so the clarity of Peter's approach, which lets the viewer see how these devices work without sacrificing the mood one bit, allowed me to delete scene after scene of verbal exposition."

eXistenZ is characterized by a richly contrasted, shadowy look that is emphasized by pools of light. Suschitzky explains, "I like pools of light enveloped by deep shadow, and I tend to go in that direction generally, but I also thought that approach was right for this story."

The picture's brooding, burnished look was a result of a slight exaggeration of the cinematographer's standard working methods. "In my typical fashion, I didn't use much fill light," Suschitzky notes. "I rarely put a light on the camera unless I'm looking for a twinkle in the eye. I also tend to keep the exposure quite generous, so the negative will print higher on the scale and not look thin. On *eXistenZ,* I simply pushed those approaches a bit further than normal."

The cinematographer adds that his painterly style is not inspired by any specific visual artists. "We're all subconsciously influenced by all that we look at as we go through life," he concedes. "I have always loved the visual arts, including painting, but paintings and photography are necessarily different, if related. In photography, we can never experience or convey, as can the painter, the touch of brush on canvas or the feeling of the passage in the making of the painting. Light is only one element in the medium, and ours is a medium involving optics and chemistry, and is very much of the instantaneous moment. We should not try to mimic painting, rather we should use our medium for what it is; a new **Micro Forces Sculptured for Your Hands**

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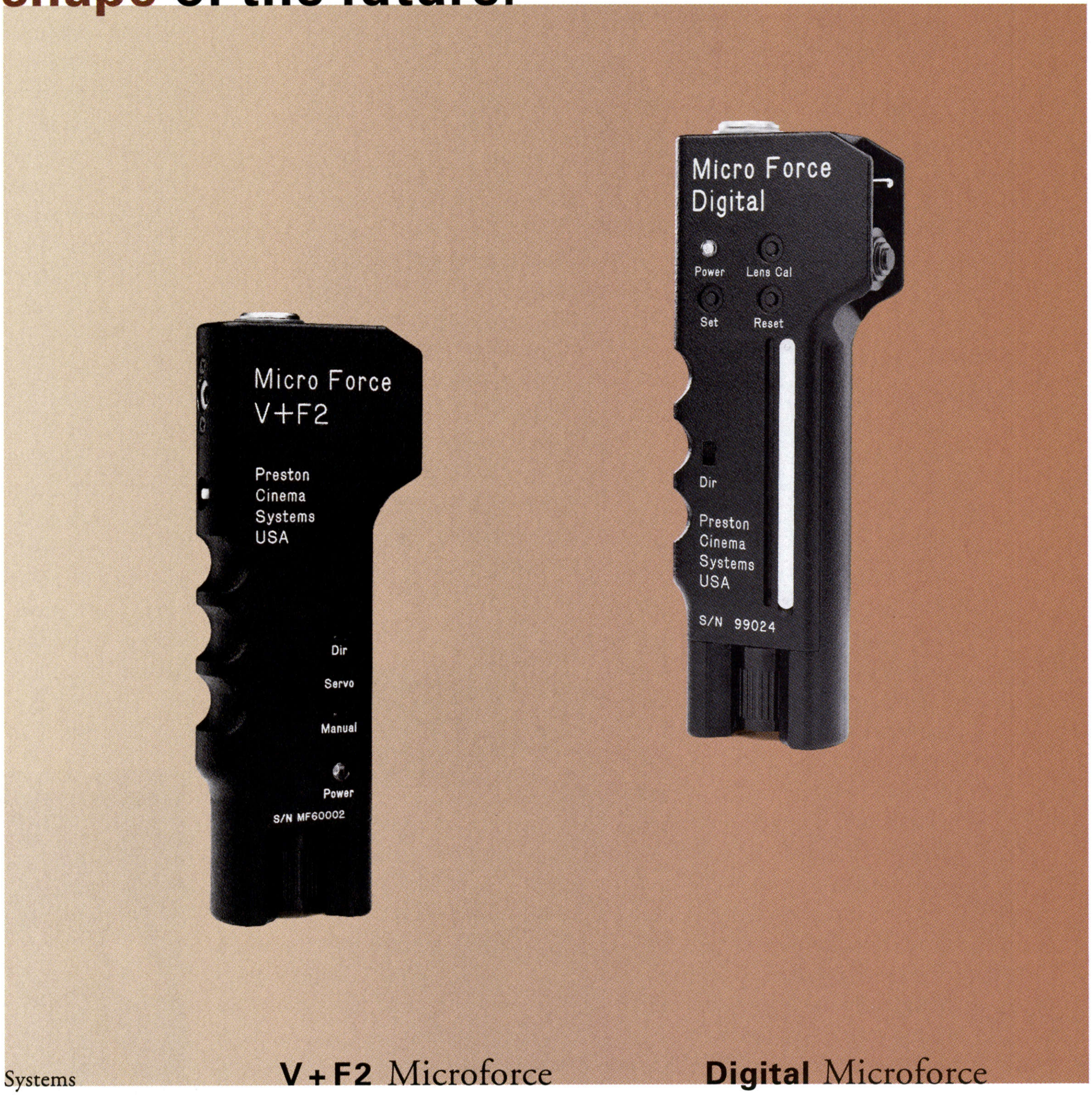
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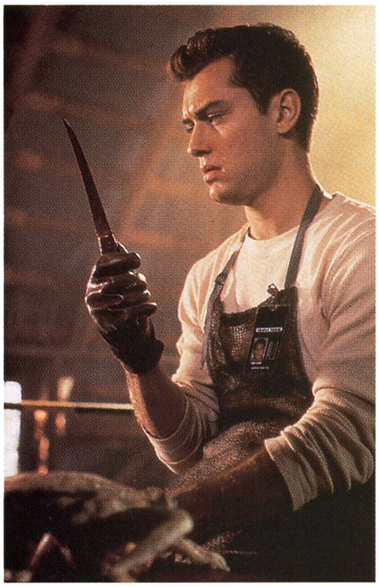


From top: Pikul is amazed by the realism of the eXistenZ environment; Cronenberg cradles a biomechanical game pod; under the influence of the eXistenZ program, Pikul assaults Geller in the bizarre virtual world.

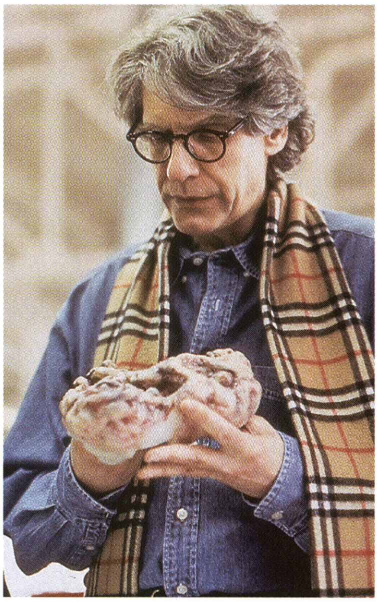
mimicry of painting will usually just look awkward, if not kitsch."

Suschitzky is reluctant to talk too specifically about his lighting setups; he maintains that because he works intuitively, he doesn't recall in detail how scenes were lit. "I don't have a game plan for lighting, and I don't believe in drawing lighting diagrams. If my work is any good at all, I think it is because I work instinctively. If I end up with a forest of flags and bars, it is something that evolves as we're setting up the shot, and it's part of an instinctive need to introduce some shadows and shape into the light. My lighting is simple in that I try to limit the use of multiple sources and fill, but I like shadows. Without shadows, one doesn't appreciate the light."

Suschitzky will divulge that his basic approach for a day interior is to place a 20K outside a window and manipulate the light from the motivating source (inside the set or location) as needed. For night interiors he tends to use a series of smaller instruments, employing the "entire range of tools for lighting and modification," including everything from Fresnels to Kino Flos.

In any given scene, it is likely that "some lights will be direct, some diffused and some bounced. I depend on my eye. I've done a lot of work by now, and I start by looking at the set; if I don't like something, I simply turn off a lamp or diffuse it, and I can rarely remember exactly what I've done!"

The use of camera movement in *eXistenZ* and in prior Cronenberg/Suschitzky films tends to be minimal, and is generally employed only when a move is strongly motivated. "Sometimes we track, sometimes we don't," Suschitzky deadpans. "Over the years, we've determined that we won't move the camera for the sake of moving it, but if the scene needs it we'll dolly across the room. However, there has to be a very good reason. "



To facilitate the filmmakers' intuitive, hands-on style, Suschitzky has always operated the camera on Cronenberg's films. "David prefers that I operate, and I like to do so on an intimate film. That way, you have a tight core unit on the floor, and communication is easy; there's no operator for me to disagree with! Decisions are reached rapidly, and I enjoy watching the film through the camera. I'm often able to point out things, very occasionally even in a performance, that one won't notice on the video playback.

"I also always say that I like to operate because you get to sit down, which the cinematographer never gets to do! On bigger films, I prefer to have an operator — as long as that person can do it better than I can."

Steadicam use is also minimal in *eXistenZ*, but it was employed for a big night exterior in which the Geller/Pikul game session ends in dramatic fashion. The scene takes place at a ski resort, a mountainous location which posed significant logistical problems. "We were on a steep slope, and I knew that dollying would be very difficult," Suschitzky relates. "We would have needed some time to prepare a rather elaborate dolly system, with counterweights going down the other side of the hill, so we opted for Steadicam instead."

Lighting the steep hillside was also a challenge. "We needed to work out the logistics well ahead of time to allow the vehicles to bring in the lighting gear. Also, we had to predetermine precisely where the Condors could be placed and exactly how high they could go, and plan the specifics of how we could disguise them with trees and bushes. We ended up using four Condors with several lamps on each."

Suschitzky chose tungsten instruments partially because he

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Pikul and Geller take aim at their enemies. Seeking to create a "timeless" future, Cronenberg determined that the real-life world of *eXistenZ* should be devoid of technology, and the filmmaker avoided such sci-fi clichés as computer screens and other gadgetry.

> **"So much of *eXistenZ* is in the mood; you have to believe that you are there."**
>
> **— writer/director David Cronenberg**

dislikes the prevalence of uncorrected HMI lighting for night scenes. "There is an artificiality to the uncorrected blue of HMIs on night exteriors," he states. "However, I go in phases. Sometimes I'll use only HMIs on night shots, but I'll never use them straight; I always half-correct so they don't look quite so blue. For this big night scene in *eXistenZ,* I decided to go for a different look by using only tungsten light." The warmer tungsten lighting is also motivated by the scene itself, in which several structures are violently engulfed in flames.

Despite his stated dislike for blue-tinged night scenes, Suschitzky did lend an eerie blue glow to the background of the nighttime driving sequence during which Geller and Pikul flee from the assassination attempt. "It was a long scene in which the characters drive along in open countryside at night," Suschitzky explains. "We simply couldn't light the entire road, so we used rear-projection of day-for-night exterior plates."

The backgrounds were photographed day-for-night in the late afternoon. "The plates were printed with a heavy blue cast because we thought it would look more interesting that way," Suschitzky explains. "I think the effect looks quite like a rear-projection; it's noticeably unreal. The scene is awash in this strange, artificial-looking blue, but that artificiality actually works for the scene," he says, slyly suggesting that very little is what it seems to be in *eXistenZ.*

In line with his instinctive approach to lighting, Suschitzky doesn't primarily consider the characters' emotional state when choosing how to gel his lights. "I don't try to echo the emotional scale of the characters with color in the way that Vittorio Storaro [ASC, AIC] does, although I tremendously admire his work. I think that I consider the dramatic needs of each scene, which, of course, includes the emotional state of the characters at that point in the story."

Suschitzky's use of gels on *eXistenZ* helps to reinforce the hallucinogenic nature of the story. Early on in the progress of their virtual-reality experience, Geller and Pikul interact with a game character whom they both dismiss as being disappointingly realized. The sequence takes place in a tiny back room of the character's store, where a small center window glows with strong, solid red light. In subsequent shots in the same sequence, the light in the window is a pronounced green and then later blue. "I didn't think logic was important at that point," Suschitzky explains. "I thought it would be better to be just a little strange, and so I thought it would be interesting if the light changed color. We are, after all, definitely in the eXistenZ game at that point, so anything is possible."

The paranoid game-players soon begin moving through the eXistenZ environment, but they don't get very far. For Cronenberg, the limited breadth and somewhat leisurely pace of the film echoes the characters' tentative exploration of their situation; via the subconsciously directed game, Geller and Pikul continually progress deeper into the inner workings of their minds and emotions. "The scenes are long, involved and detailed, and contain a fair amount of dialogue," the director notes. "There aren't that many different locations. In fact, we often come back to the same set, but with a different understanding of what that place really is, which is what I mean by going 'deeper'. The first scene and the last take place in the same setting, but it is an altered reality and thus an altered set."

Cronenberg and production designer Carol Spier cleverly countered the conventional wisdom of creating a world of the future, working by "subtraction" rather than by addition. There are no computers or monitors, television sets, sneakers, or regular telephones, and no clothes with patterns of any kind, Cronenberg explains. "None of this is ever even alluded to by the characters, but it works to dislocate the audience. There's a boldness and an almost cubist look that stems from the fact that there are no patterned clothes. This creates the effect of a simpler sort of 'game polygon' kind

Continued on page 58

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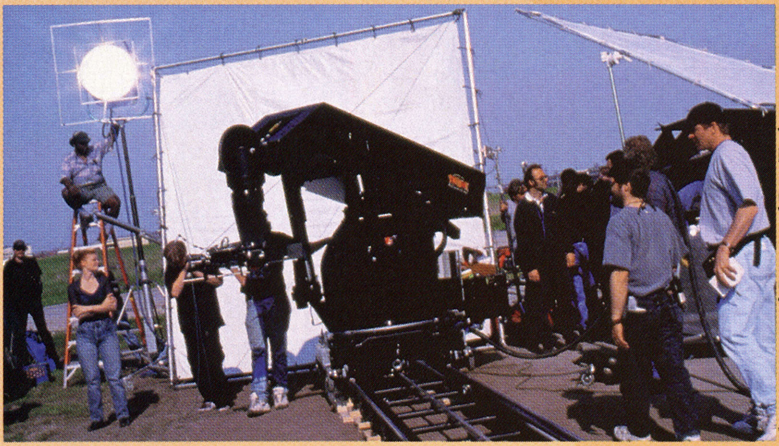
EXISTENCE, OR EXISTENZ?

Toybox uses digital wizardry to enhance Cronenberg's imaginative fantasy.

by Mark Dillon

Toybox, the Toronto-based special effects division of Command Post, helped director David Cronenberg and visual effects supervisor Jim Isaac add some eerie details to the bizarre world of *eXistenZ*. The duo is renowned for achieving outlandish creations in-camera via animatronics (evidenced by such films as *The Fly* and *Naked Lunch)*, but on this new film, their ambition exceeded the reach of tried-and-true methods. In line with the theme of the film, Toybox presented a digital solution, adding *eXistenZ* to a list of feature credits that includes *The Game*, *Mimic* and *Bride of Chucky*.



The Mark Roberts mo-con system was utilized for several effects sequences seen in *eXistenZ*.

Photo courtesy of Command Post/Toybox.

eXistenZ blurs the line between reality and virtual reality, leaving the audience to wonder, "Are we in existence or eXistenZ [the game]?" Such doubts arise with the appearance of a two-headed, 18" creature that appears to be equal parts frog, salamander, and lizard. This strange animal was imagined by special makeup and creature designer Stephan Dupuis (also a veteran of *The Fly* and *Naked Lunch*). The director wanted the miniature chimera, which is spotted by Geller at a rural gas station (a real location in Caledon, Ontario), to scurry up the face of a gas pump, and for his camera to remain focused on it in full light for at least 10 seconds. The effects artists at Toybox convinced him that the sequence could work with a CG character.

Toybox achieved the necessary camera movement by shooting their plates with a Mark Roberts Precision motion-control unit, operated by the firm's in-house crew under the supervision of mo-con producer Joni Dick. The 1,200-pound rig, outfitted with a Fries Mitchell GC 35R3 camera, has 12 axes of motion. Thanks to its proprietary Datalink interface, the rig's movements can be recreated in 3-D on an animator's screen. Toybox's ability to realize this particular shot earned the company a contract as sole provider of the film's visual effects.

Cronenberg had a clear-cut idea in mind of how the tiny two-headed beast should look, and Isaac and Dupuis proceeded to construct a model based on his concept. Given little prep time, however, the best they could do was send an unpainted plastic-cast version to Toybox senior animator Jim Rutherford, whose team then used Houdini to begin digitizing and refining the model toward an exact CG rendition. Isaac followed up with a full-color painted plastic version, which Toybox studied for texture mattes. The filmmakers felt that a puppet would be needed for close-ups, so an animatronic version was completed just before shooting started; Toybox obtained it after production to help finalize the CG animal's scaly epidermis.

In the gas station sequence, Geller reaches out to pet the lizard, which rests atop a gas pump. To shoot the scene, director of photography Peter Suschitzky, BSC first framed the shot with the viewfinder while motion-control effects specialist Jerry Andrews programmed the keyframes. Suschitzky's camera move could then be infinitely repeated via remote control, and subsequent plates and tracking passes could be integrated in post. Cronenberg and Suschitzky's extensive experience with mo-con work on *Dead Ringers* (see *AC* Dec. 1988) surely made this process run more smoothly.

In close-ups, the animatronic creature was given life by three puppeteers — one underneath the pump working its tail, and one for each of its two heads. However, these shots benefitted from CGI in ways that went beyond the simple removal of the puppeteers' rods. Isaac ran out of design time, leaving the the lizard's eyes unfinished. However, Toybox visual effects manager Dennis Berardi assured him that they could create suitable CG eyes, so the crew shot the puppet with its eyes painted green, creating miniature "green-screens" with tiny tracking markers. Toybox animators then sifted through reference footage of various reptiles for a fitting reference. After one animator tracked the eyes' movements (over the course of a full three weeks), the new CG orbs, animated in Houdini, were popped into the greenscreen areas, and then softened and color-corrected to complement the puppet's hue.

A reverse shot on Geller, which included the lizard's full body, was also originally photographed with an animatronic creature, but the puppeteers didn't have adequate preparation. According to Berardi, "There was just no moment in the puppet performance [that the filmmakers] liked, plus there were some technical problems." However, he notes that Cronenberg had no reservations about utilizing a CG creature in this and three additional shots "once he started to see how fully articulated and alive the [digital] puppet could be."

Toybox is especially proud of this shot, which cuts from a CG-enhanced puppet to a full-CG creature and then back to the puppet. For the audience to believe that Geller was interacting with a real creature, the digital lizard had to be nothing less than photorealistic. On set, Cronenberg called out directions to actress Jennifer Jason Leigh, who simply had to visualize the lizard, aided by video playback of the original puppet's performance. Berardi recollects, "He would whisper to her 'Okay, now it's angry and it snaps back,' or 'Just caress it.'" Some eight minutes of footage of Leigh playing to the imaginary creature were shot to achieve 160 frames of screen time.

Cronenberg initially viewed the creature's movement in a roughshaded or wireframe mode while Toybox finished the creature's build, since the two aspects hinged on one another. A Houdini program feature called CHOPS even allowed Isaac to do some hands-on animating himself. With CHOPS, Rutherford could rig up the mouse to control some of the channels that drive the creature. By playing with the mouse, Isaac could get real-time feedback onscreen. Rutherford, meanwhile, could save his favorite takes and then spend a couple of days touching them up.

The mo-con rig was employed to more subdued effect for a scene in which Geller and a group of workers exit the Trout Farm — a Quonset hut where organs of mutant creatures are harvested for the eXistenZ game — and make their way to a nearby barn-cum-Chinese restaurant. Since two such adjoining structures were hardly likely to exist in the real world, separate locations were used. Willis and motion-control cameraman Shawn Maher filmed an uninterrupted tracking shot, working with the film's first unit. The plate's A-side (the Quonset hut segment) was filmed at northern Toronto's Downsview Air Force Base, with the camera tracking Geller for about 30' before coming to rest on two 50' x 50' bluescreens. Suschitzky's camera head operation and focus changes were recorded for the shot's replay in subsequent layers.

Two months later, the crew shot the B-side against an aptly decorated red barn located in the rural town of Erin, Ontario. The Chinese restaurant was at the bottom of an incline, and from a compositing perspective, it was situated on the wrong side of the highway. To maintain the correct trajectory, Andrews had the tracking move cut into a roadside bank and over a ditch. The barn eventually came into view during replay of the A-side's recorded camera movement.

Maintaining a seamless middle ground was the trickiest part of compositing these elements. Even though the two locations were shot during the same time of day and in similar weather conditions, Berardi says that concerns about matching led to "a lot of replication and paintwork on the trees and the sky." ■

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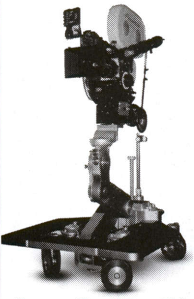
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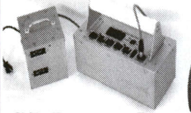
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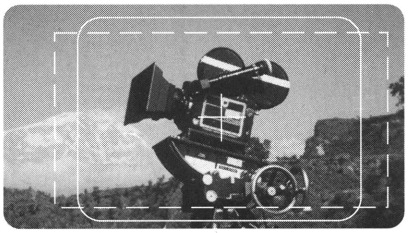

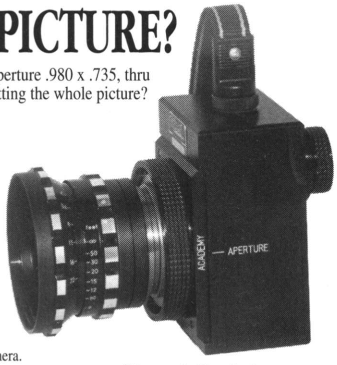

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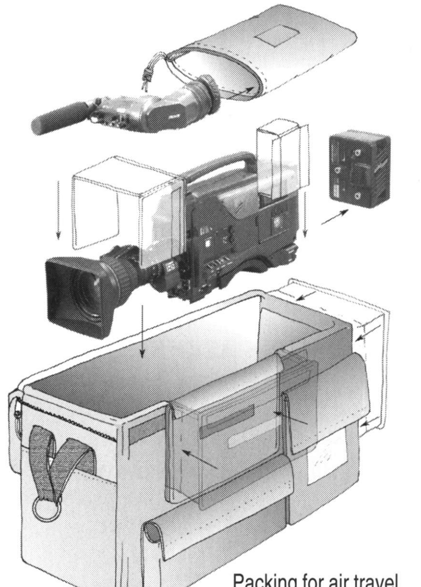

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of world, which is a familiar look to people who play computer games."

The simple, patternless world of *eXistenZ* is noticeably dominated by rich yellows, blues and reds, and Cronenberg notes that this consistent color palette helps to propel the tale. "The colors of the sets are always crucial to the overall feeling of a film," he submits. "So much of *eXistenZ* is in the mood; you have to believe that you are there. The colors are also, strangely, a narrative device. I wanted everything in the movie to promote a particular earth- and flesh-tone palette." He adds that these hues help to delineate this strange new world where biological devices have supplanted electronics, and traditional modern conveniences are nowhere to be seen.

eXistenZ is Cronenberg's first film to utilize computer-generated imagery — provided by Toronto-based effects company Toybox (see sidebar on page 56). The technology was used to create a two-headed reptile creature that serves as a troubling reminder of the widespread biological tinkering inherent in this futurescape. However, most of the film's unsettling effects, including the pulsating biological game pods and various mutant aquatic creatures, were created with traditional animatronics in order to help the actors interact with them more convincingly.

Suschitzky initially feared that the carefully constructed look of *eXistenZ* would be compromised by Eastman Kodak's recent moves toward manufacturing higher-contrast print stocks. He says that he was a bit dismayed by the increased contrast in Kodak's new Vision print stocks, which became available between the shooting and the timing stages of the project. He explains, "I like a rich, high-contrast look, but I'd rather achieve it in my lighting on a flatter negative stock than have higher contrast imposed on me. I'm especially uncomfortable with additional contrast being added in the release printing. Kodak seems obsessed with getting the deepest blacks, perhaps through their contacts with cinematographers who promote that obsession. At the risk of sounding heretical, I think that the pursuit of deeper blacks has led to us paying a price in the midtones, where we're getting fewer subtleties."

This was evident for Suschitzky during a side-by-side test of the new Vision print stocks. "Kodak prepared a test reel where they put the two new print stocks [Vision 2389 and Vision Premier 2393] up against the old one [5386], and I preferred the older stock. If I'd known about these new higher-contrast print films when we made *eXistenZ*, I would have done something different in my photography to compensate for them — though I'm not sure what."

eXistenZ was primarily shot with Kodak's 200 ASA EXR 5293; 500 ASA EXR 5298 was used for a few night scenes and for the aforementioned rear-projection plates.

Cronenberg repeatedly turns to Suschitzky to help realize his far-flung flights of imagination because he feels that their partnership has evolved into a creative alliance that is both efficient and exciting. "There are two ways to go when you're choosing a cinematographer," the director opines. "One is to run out and get whoever is the hottest guy for each film, but I like to go deeper into an established relationship, because you can wear off the rough edges and develop a shorthand. That makes the process very economical, and if you're both excited and enthusiastic you won't get into a rut. Peter's work is always stunning, but never in the same way. He really cares about telling the story and making the magic work, no matter what sort of strange magic is required." ■

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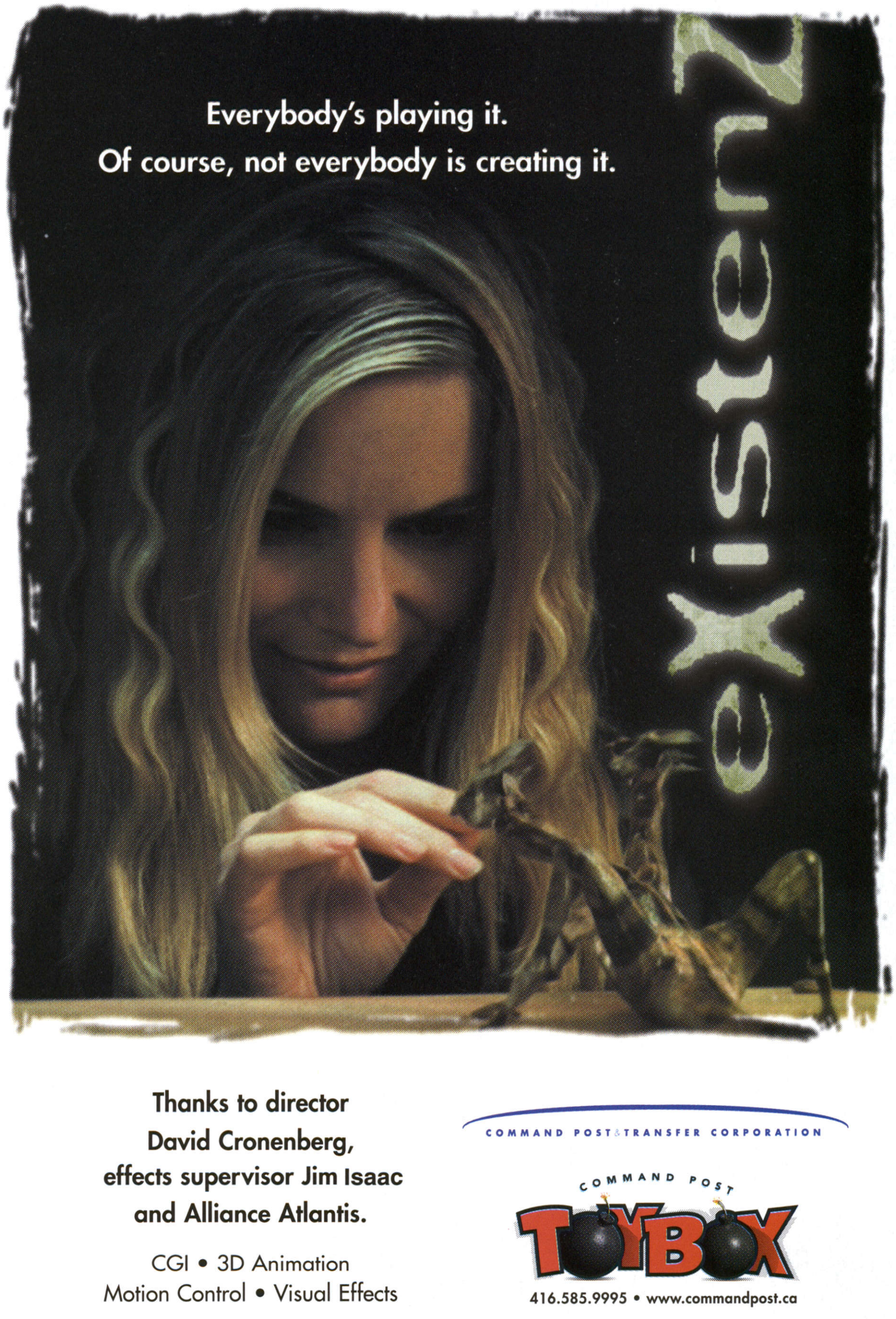
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eXistenZ

Thanks to director David Cronenberg, effects supervisor Jim Isaac and Alliance Atlantis.

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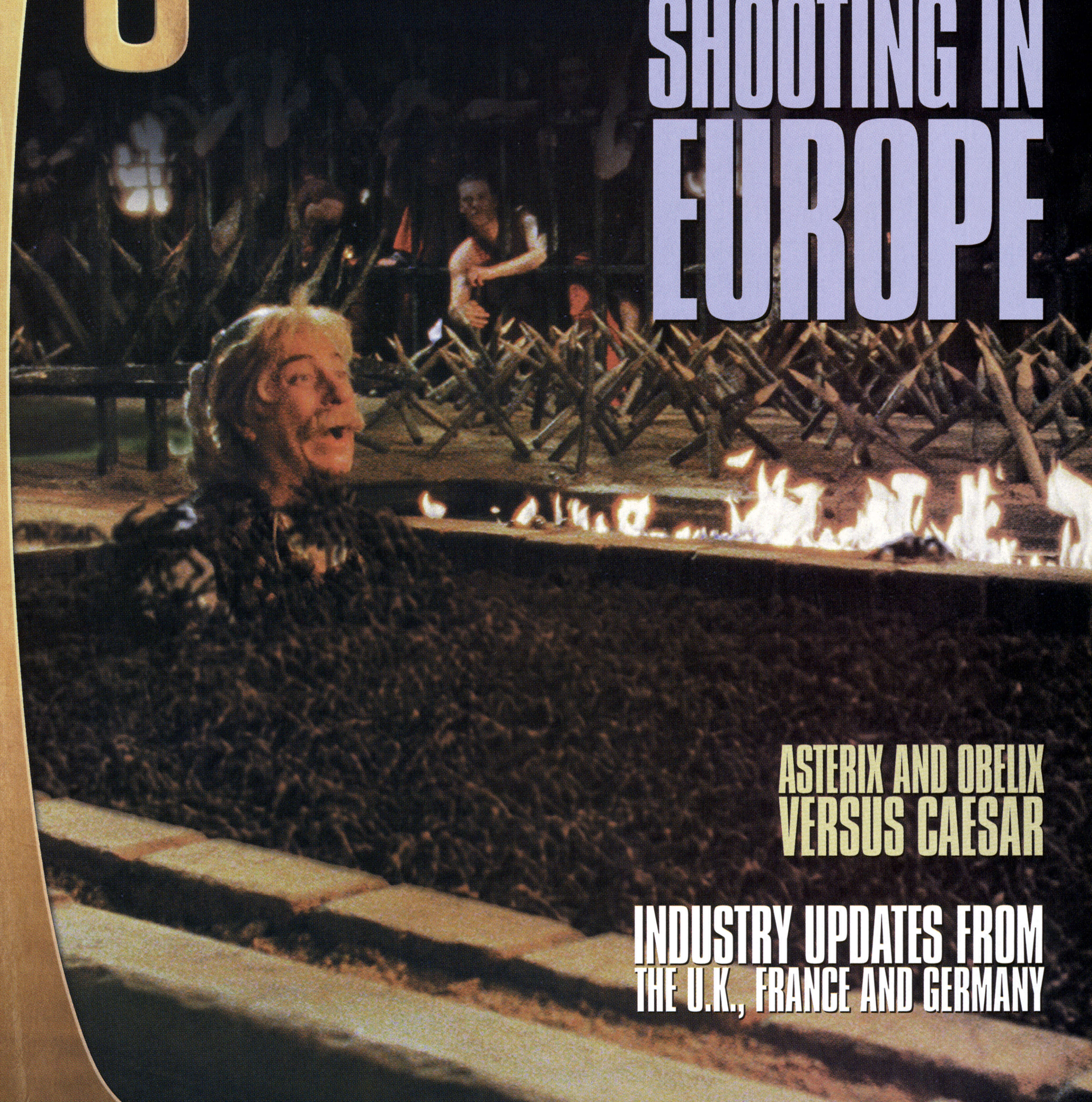


SHOOTING IN EUROPE

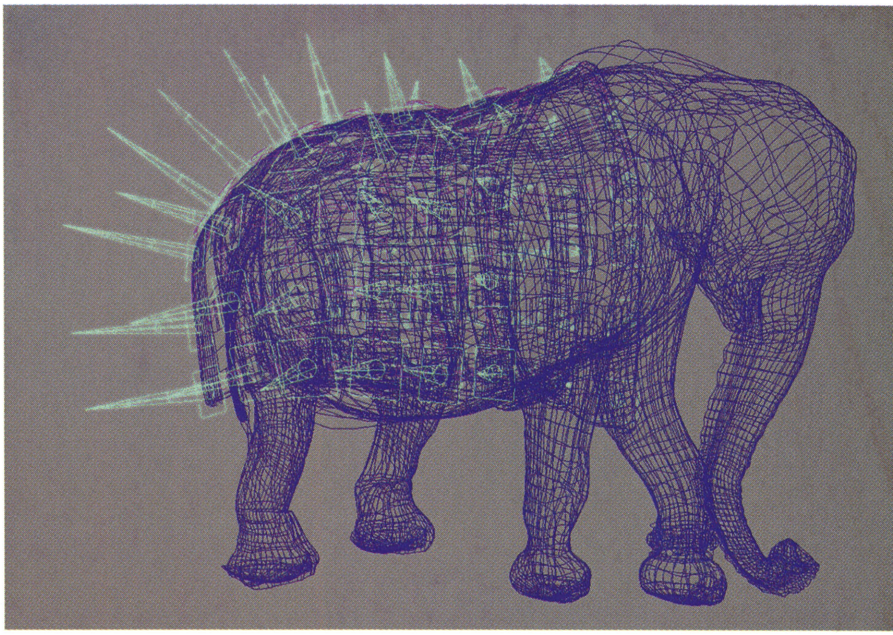
ASTERIX AND OBELIX VERSUS CAESAR

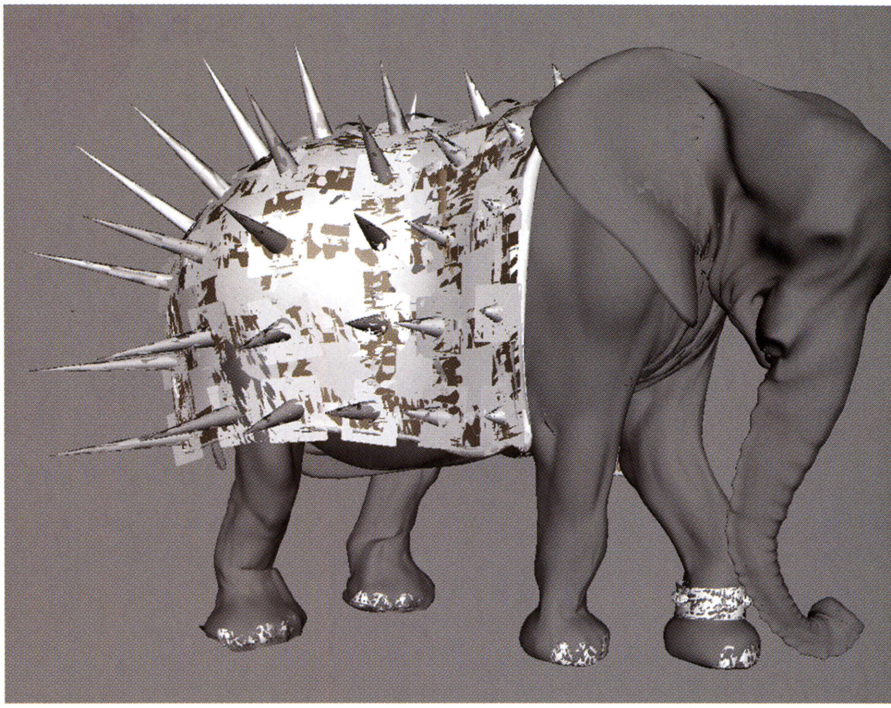
INDUSTRY UPDATES FROM THE U.K., FRANCE AND GERMANY

Friends, Romans and Countrymen

With the help of Gallic visual effects house Duboi, director Claude Zidi and cinematographer Tony Pierce-Roberts, BSC bring a popular French comic-book tale to life in *Asterix and Obelix Versus Caesar.*

by Benjamin Bergery

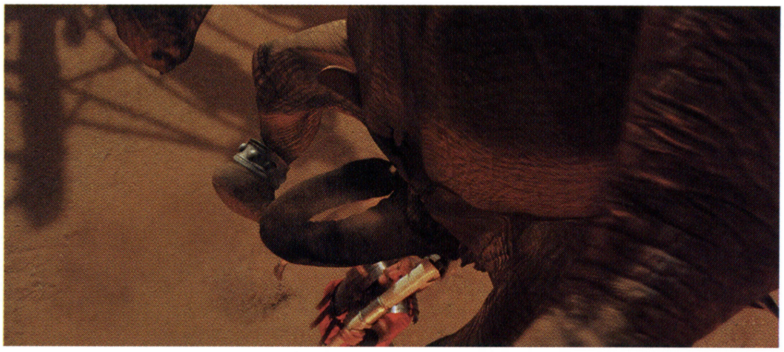


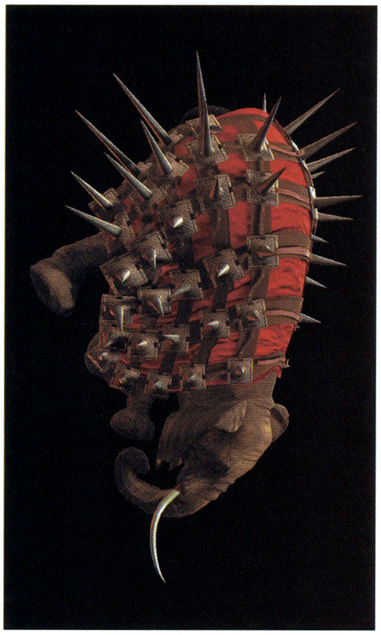


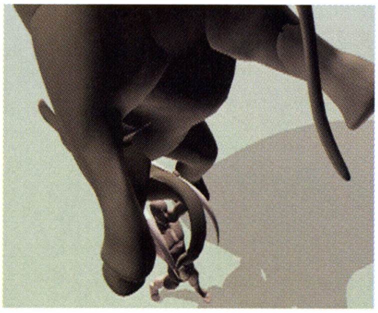
The lighthearted comic-book series *Asterix* is something of a pop-culture institution in France. Created by Alberto Uderzo and Rene Goscinny, its story is set in the first century B.C. during the Roman occupation of Gaul, and chronicles life within the only Gallic village *not* under Roman control. The unnamed town has escaped occupation due to a magic potion concocted by an elderly druid. The potion gives the villagers a temporary jolt of superhuman strength, enabling them to wreak havoc on any Roman legion crazy enough to attack them. In many of the episodes, however, the villagers become their own worst enemies, and their petty squabbling is often an ironic reflection on contemporary society.

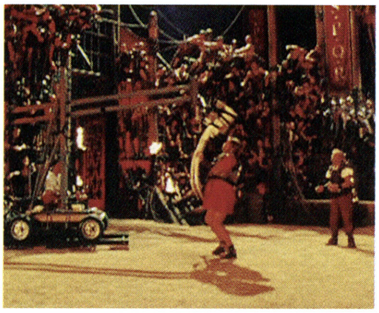
The heroes of this tale, Asterix and Obelix, are unlikely friends: Asterix is short, shrewd and plucky; while Obelix, who is huge, dumb and big-hearted, has managed to attain superhuman strength after falling into the magic potion as a child. The plot of *Asterix and Obelix Versus Caesar* is not a direct adaptation of the comic, but rather an entirely new adventure. The Gaul villagers attract the wrath of Caesar himself by greedily stealing the Roman taxman's treasure chest. One of Caesar's aides, Detritus, kidnaps the elderly druid, hoping to use the magic potion to rule the Empire. Asterix is captured and submitted to a series of harrowing trials in a Roman circus. In the final act, the Gaul villagers meet the impossible task of facing the entire Roman army.

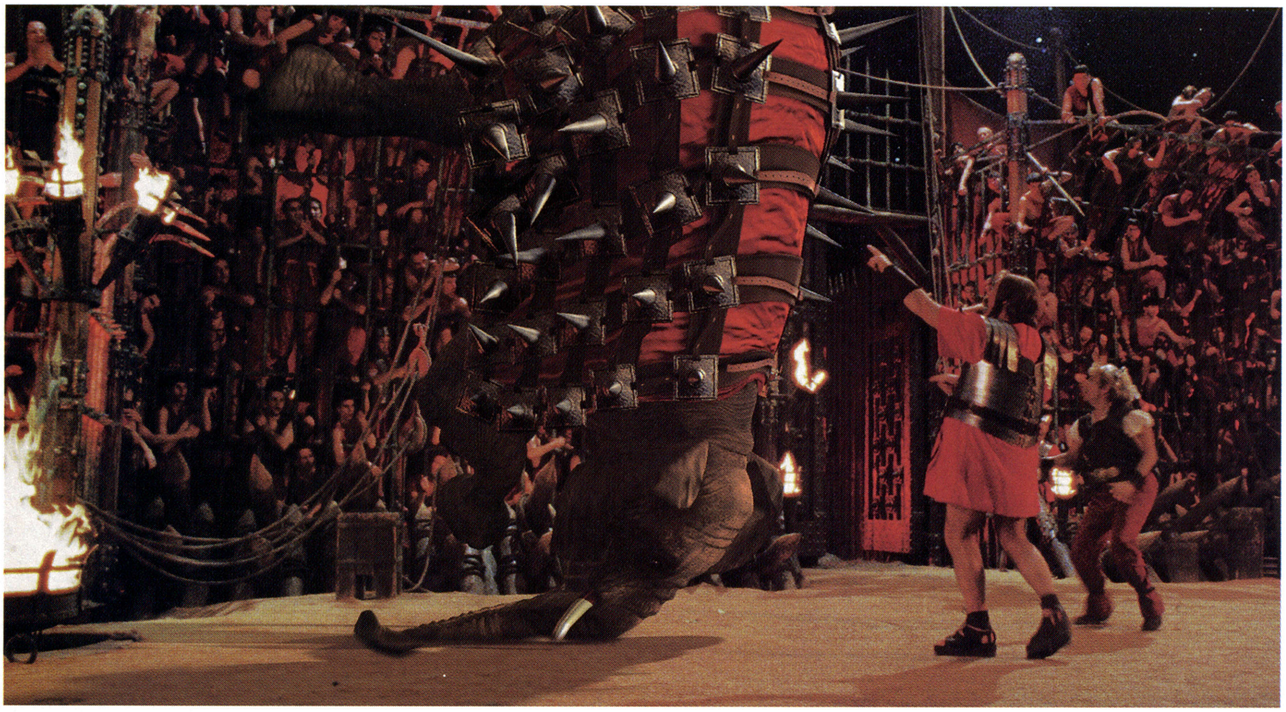
With a price tag of some $50 million (U.S.), *Asterix* is the most expensive French film ever made; paradoxically, it's also a simple, unpretentious adventure film aimed at children of all ages. With an interesting cast of actors, veteran comic







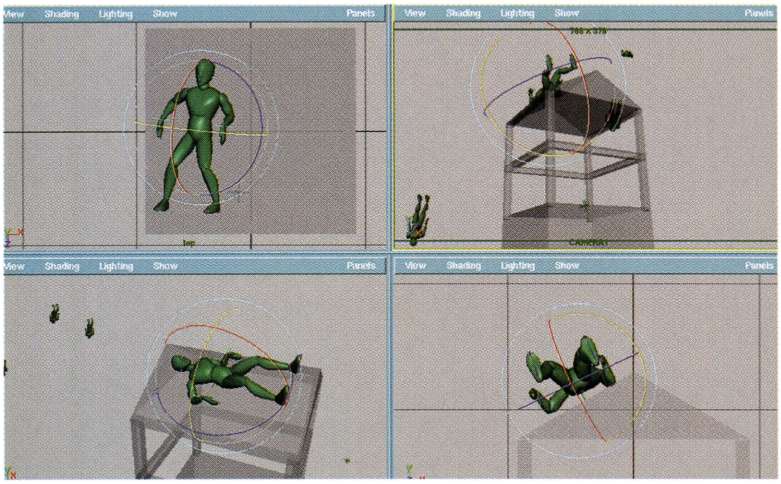




Images courtesy of Duboi.

Various elements were used to create a shot of Obelix tossing an angry elephant onto its tusks. Pitof and the Duboi team used Alias/Wavefront software to create a digital model of the beast (opposite page). The effects experts then created an animated version of the sequence (this page, top three photos) and eventually married the animated elephant to the live-action footage of actor Gerard Depardieu, who interacted with a mechanical device that stood in for the creature on the set.

Friends, Romans and Countrymen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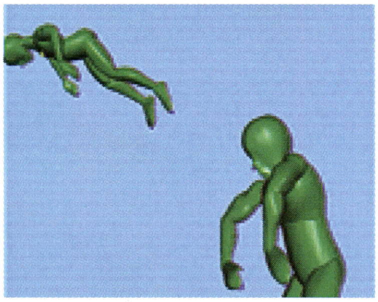


Both live-action and digital techniques were employed to create shots of Roman soldiers sailing through the air during battles. More dangerous shots were accomplished with motion-capture techniques, as shown in the animated frames at right. For shots in which a flying soldier's face was discernible, actors were photographed bouncing on trampolines (lower left), and then matted into scenes via standard greenscreen cut-and-paste techniques.

director Claude Zidi has fashioned a film with just the right proportion of realism and comic fantasy: Christian Clavier stars as Asterix, alongside French icon Gérard Depardieu (who is convincing as the simple-minded Obelix) and Italian comic Roberto Benigni (as Detritus, the scheming Roman villain).

Zidi's film benefits from the sophisticated and inventive cinematography of Englishman Tony Pierce-Roberts, BSC, who works on both sides of the Atlantic. Pierce-Roberts's resumé is an admirable mixture of big-budget studio films and independent European features. His American credits include *White Fang*, *Disclosure*, *The Client* and *Jungle 2 Jungle*. But the cinematographer is perhaps best recognized for his association with the producer/director team of Ismail Merchant and James Ivory, for whom he has shot six features to date, including *A Room with a View*, *Howard's End*, *The Remains of the Day* and *Surviving Picasso*. Pierce-Roberts's exquisite work on *A Room with a View* and *Howard's End* garnered him Academy Award and BAFTA (British Academy of Film and Television Arts) nominations for each, while *The Remains of the Day* netted him a third BAFTA nomination.

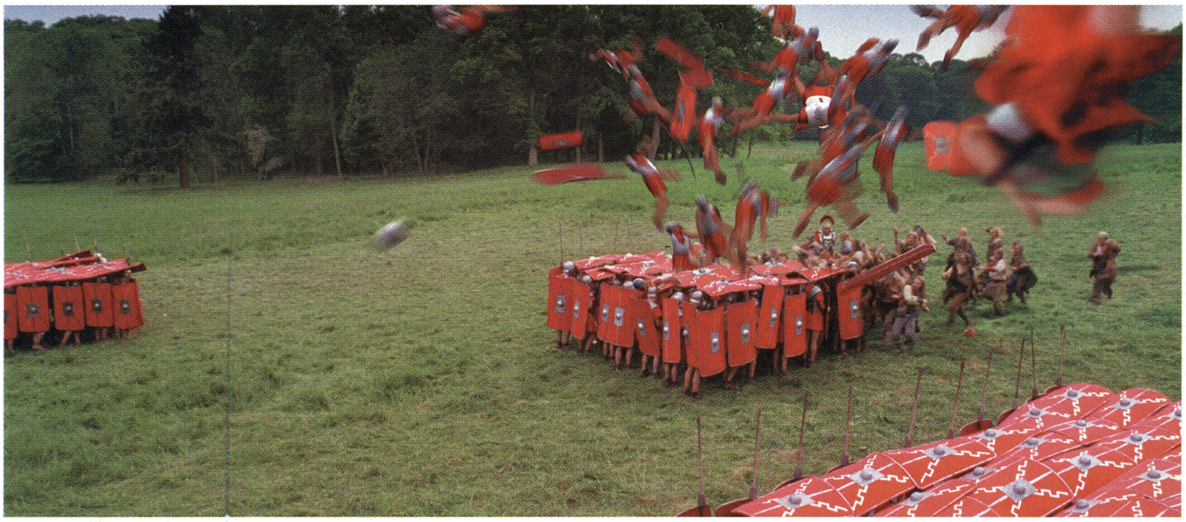
The man behind *Asterix's* convincing visual effects is Pitof, who is best known for the groundbreaking work he contributed to *Delicatessen*, *The City of Lost Children* and *Alien Resurrection*. (Pitof is associated with the leading European digital effects house, Paris-based Duboi.) All three of these fantastic films were directed by Jean-Pierre Jeunet (who shared credit with Marc Caro on the first two titles) and photographed by Darius Khondji, ASC, AFC. In addition to having created effects for many of France's most successful features and commercials, Pitof is also an accomplished musician.

Asterix was shot in the widescreen Super 35 format with Panavision Primo prime and zoom lenses. Pierce-Roberts believes, however, that the larger negative area of the true anamorphic process would have increased the onscreen quality. "It looks pretty good for Super 35," the cinematographer confides, "but it would have been that much better in 'Scope, although it probably makes very little difference to the audience." Pitof, on the other hand, prefers Super 35 to anamorphic because the smaller image size allows him to place visual effects reference points that fall within the "full-frame" exposed negative, but lie outside the narrow Super 35 rectangle. He adds that Super 35 also enables him to reframe the image vertically in postproduction, and even lend some vertical motion to a shot when necessary.

In terms of visual style, Pitof explains that the director Zidi wanted to preserve the comic book's magic without going too over the top. "Claude wanted to do an adaptation of the comic series without getting a 'comic book' look," Pitof notes. "He wanted to balance the comic aspect with an element of realism. The film almost feels like a historical epic, although it really isn't. There is always this kind of ambiguity; for example, the costumes are historically accurate, but have been slightly re-adapted. The sets are close to the [settings in the] comic book, but they are interpreted with more realism. We wanted to give that same realism to the digital effects in *Asterix*, but with a comic element. For example, when the Romans fall on the ground, they don't really hurt themselves — maybe they get bruised and go away limping, but they aren't dead. Logically they should be decapitated, but all they say is 'Ouch.'"

At Duboi, Pitof led *AC* through the intricate process that generated three of *Asterix's* spectacular virtual effects: making Roman legionnaires fly; helping Obelix lift an elephant by the tusks; and covering Asterix with a swarm of moving tarantulas.

The pounding of Roman



Roman legionnaires marching in "turtle" formations find themselves overmatched by the Gauls' formidable strength. The film's action scenes were designed to have a comical feel that would be more appropriate for younger viewers.

legions is a recurring theme in the Asterix comics. Those Romans brave or foolish enough to attack the village end up soaring through the air after the villagers hit them with potion-powered punches. Towards the beginning of *Asterix*, the Gauls charge a phalanx of legionnaires that's marching towards them in a Roman "turtle" formation (a moving cube of shields). The Gallic attack on the "turtle" creates a geyser of dozens of Roman soldiers.

When a flying Roman soldier's face was distinguishable onscreen, Pitof used standard greenscreen cut-and-paste techniques (see illustration on opposite page). The crew shot stunt men jumping on trampolines to create a visual element that could be chroma-keyed onto first-unit photography.

However, the script's considerable number of soaring Romans made it impractical to use greenscreen at all times. Another solution — common to Hong Kong kung-fu movies — would have been to suspend stunt men from moving cables, but Pitof notes that "there's often a sync problem, a lag between the moment the punch is thrown and liftoff." The attack on the turtle formation also would have required too many cables to be practical. Pitof therefore proposed to Zidi that some of the flying Romans should be created digitally.

"The hardest thing to create in the studio is a night exterior, because you're dealing with little pools of light, and that takes more time. Once you've rigged the lights, day exteriors are easier because you're dealing with broad sources of light."

— director of photography Tony Pierce-Roberts, BSC

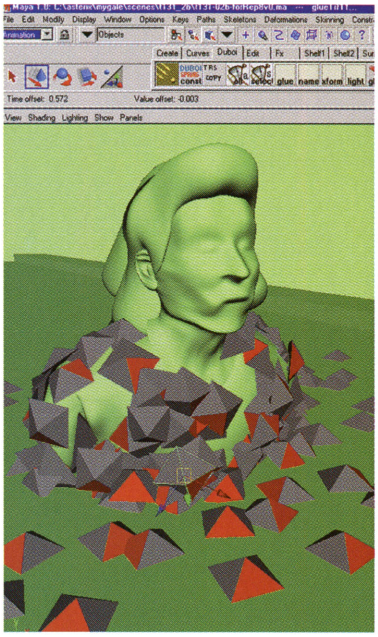
In order to make the virtual Romans move realistically as they flew through the air, Pitof used motion capture to transpose real human movements to digital models. Nine infrared video cameras were positioned in a half-circle around wriggling actors suspended from huge bungee cords. After the actors' bodies were covered with little spheres made of Scotchlite, to be used as reference points, a computer provided the correlation of the nine viewpoints of every sphere onto a corresponding point of the three-dimensional model.

An application of these captured motions to virtual Romans can be seen in the digital image elements shown on the opposite page. In one, a virtual Roman is falling on a shed, and in another, two green models are seen flying through the air. Airbound props such as helmets, swords and shields were also created digitally — a much safer solution to the in-camera alternative. As a final touch, motion blur was added to all of these virtual elements. Onscreen, these tricks remain invisible. The action moves from a real actor getting punched to a virtual Roman flying through the air, and then cuts back to a real stuntman hitting the ground.

In the film's second act, Asterix is captured by the evil Detritus, who throws our hapless hero into a Roman circus, where he must confront a series of animals for the entertainment of an audience of Roman soldiers. Asterix has to survive an assault by snakes and lions, wade through a pool of crocodiles, and then walk through a pit filled with thousands of tarantulas. He eventually confronts an angry elephant but, fortunately, Obelix comes to the rescue.

Pierce-Roberts crafted a beautiful night exterior for the vast circus set in Munich's Bavaria Studios. Indeed, much of the film was shot in the

Friends, Romans and Countrymen



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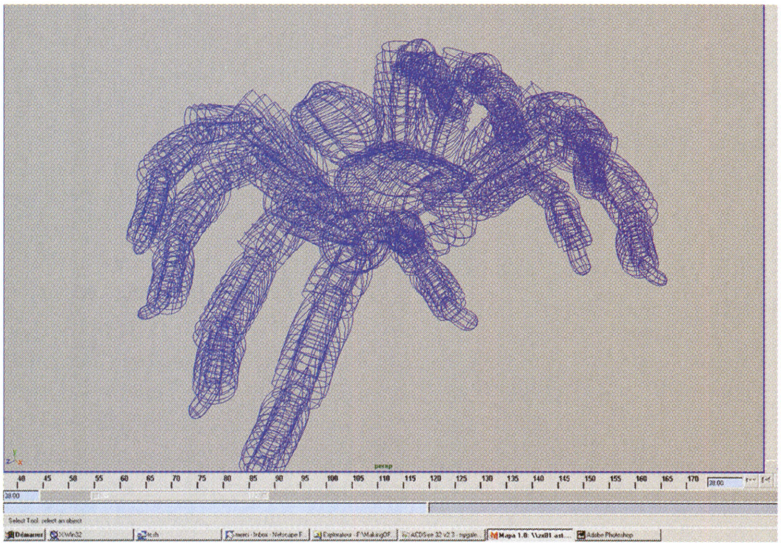

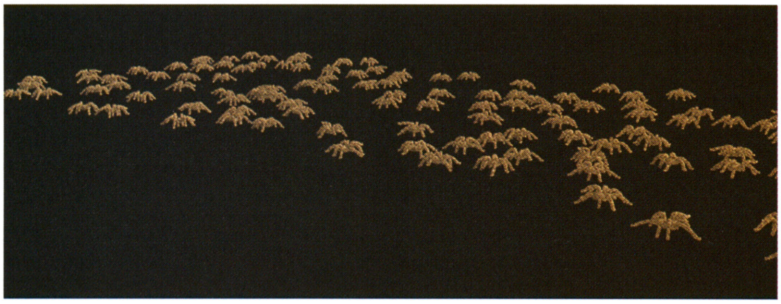

Since actor Christian Clavier (who stars as Asterix) was understandably reluctant to let live tarantulas crawl all over him, Pitof's team used digital wizardry to spare him the horror. Clavier was shot in an empty pit, and a motion-control rig was then deployed to duplicate the same camera movement a second time — without the actor, but with tarantulas in the pit. To complete the sequence, a computer program called Delafoul ("of the crowd") was used to create and animate an additional horde of virtual spiders (see final composite on page 68).

studio: the main set, the Gallic village, was re-created on a huge 4,000-square-meter soundstage at the Studio Arpajon, which is located outside Paris. "If we focused one lamp, it wouldn't even register on the meter — we had to set up something like 20 to get anything," recalls Pierce-Roberts of this enormous task.

The cameraman confesses to a penchant for the huge sets he illuminated for *Asterix*. "I like doing studio shoots, because you save a lot of time and pain and it eliminates a lot of stress: if you don't finish by the end of the day, you just come back the next." At the director's request, the cinematographer rigged the giant stage at Arpajon so that he could quickly switch from shooting a day to night exterior. "That was one of the first things that Claude Zidi said to me. I told him we could do it, but that it was a matter of budget. I had to prerig two complete sets of lighting instruments, including one that was preset and filtered for night. Most of the fixtures were on dimmers, and everything went through a big computerized dimming board — all of the settings were memorized, which was great. The hardest thing to create in a studio is a night exterior, because you're dealing with little pools of light and that takes more time. Once you've rigged the lights, day exteriors are easier, because you're dealing with broad sources of light. Even if it's a bit lighter here or there, it doesn't show for the most part."

The circus set, however, did constrain Pierce-Roberts's lighting. "We had all of these soldiers standing on the wrought-iron work, which we couldn't remove because of safety and cost considerations," he recalls. "We therefore simplified it quite a bit. I had a couple of little doorways cut out so that we could poke a lens through to film the lions or the crocodiles, but in essence nothing in the set moved. We had to do most of the lighting from the top, and it was quite difficult. We had one basic overall rigging of space lights which were at a fairly low light level. They were all wired into fluctuating dimmers so they'd flicker. This was supplemented with practical torches and some lights that were literally placed on the ground. I wanted to create an extreme lighting effect, and it worked out fine — you get a sense of it being half in red. I think it looks like the comic books. If you look at the books, some of the extreme colors are there." As

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Asterix wades through the pit of tarantulas in a convincingly creepy digital composite.

depicted in the image on page 63, the final effect is a hauntingly rich image aglow with firelight.

But according to Pierce-Roberts, the circus set's most daunting challenge was not technical in nature. "It was the bloody crocodiles. They had some mechanical ones which were very good and just sat there all day, but every now and then they would let the real ones in amongst them, and it was very hard to tell the difference. I have to say that they were a bit lax about actually saying, 'Okay guys, we're letting out the real crocodiles.' There was one particular crocodile who definitely had my name on his lips — I'm sure of it. He never lunged at me, but he was always following me!"

After Asterix has survived the onslaught of serpents, lions, "bloody crocodiles" and spiders, he must face one last animal threat — an angry elephant. But the superhuman Obelix intercedes. He grabs the leviathan by its tusks, lifts it into the air and lets it drop comically, leaving the elephant upside-down, helplessly stuck in the ground by its ivories.

To fashion this stunning effect, Pitof and his team once again mixed reality with the virtual. Though a real elephant charges Asterix, it is a virtual one that is lifted and dropped. Pitof notes that this effect's execution became somewhat constrained by the need to match the real animal: "It's not like making a dinosaur, where you have a certain degree of freedom. No one has ever seen a dinosaur. Here we had to record the real elephant and digitally clone it."

"My digital specialty will soon disappear and be divided among the different departments. That is to say, the people who do sets will do virtual 3-D sets, animal trainers will become virtual animal trainers, stuntmen will do virtual stunts, and so on."

— visual effects supervisor Pitof

Pitof and his team at Duboi photographed the elephant from every angle and created a digital model with Alias/Wavefront Maya software. Unlike the flying Roman effect, the elephant lift was actually created before the shoot. "We did the effect backwards," Pitof explains, "but it was actually a logical progression. First we did 3-D research simulating the kind of movements an elephant would make if there were someone strong enough to hold him up by his tusks. How would the mass and the centers of gravity behave?" The stages of Duboi's research (as pictured on pages 62 and 63) demonstrate the concept's transition: from line drawing to a 3-D rendering with textured skin to an animated figure lifting the virtual elephant.

Virtual footage created before the shoot dictated the camera angles, with some flexibility. In addition, Gérard Depardieu needed to interact with something real as he acted out Obelix's strenuous lift. On the set, the virtual elephant was replaced with a mechanical device the actor could grab onto — a sort of crane with tusks at one end and weights at the other. "We asked the Versaillais, who did the mechanical effects, to make this machine that would permit a certain number of predetermined movements and no others," Pitof explains. "All Depardieu had to do was grab these tusks. During the shoot, proportion, scale and resistance were calculated so as not to be too easy or too hard. We then captured Depardieu's movement with some reference grids and applied it to our virtual model."

The creepiest virtual effect in the circus sequence, if not the most spectacular, is when the courageous

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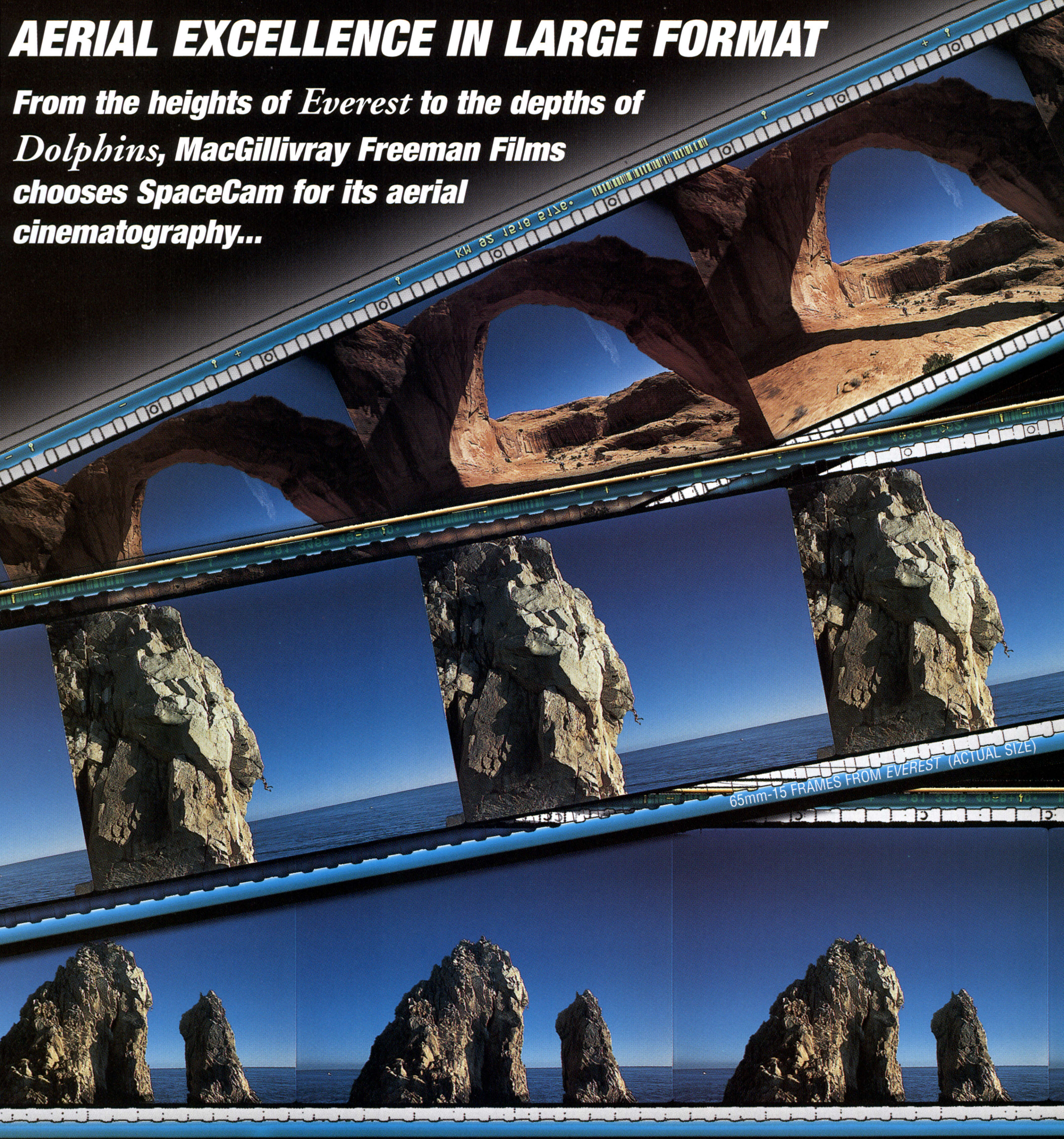

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Asterix disappears into a pit full of tarantulas, and then emerges on the other side with dozens of the furry arachnids crawling over his face and body. In contrast to the elephant sequence, all of the spider effects were achieved after the shoot.

Understandably, the actor playing Asterix, Christian Clavier, was rather reluctant to carry out his scene covered with actual arachnids. As illustrated on page 66, the shot was first done *sans* spiders. The crew used a motion-control rig to duplicate the same camera movement a second time — without the actor, but with tarantulas in the pit. Of the 300 tarantulas assembled for the scene, some were tied to a Plexiglas cover, while others were left free to roam.

Pitof remembers that this complex sequence had a twofold challenge: to multiply the number of tarantulas, and to place them on Asterix's face. As Pierce-Roberts recalls, "When you saw all 300 spiders, there didn't seem to be all that many." Pitof's team therefore constructed virtual spiders, and programmer Rip O'Neil developed a special program — dubbed Delafoul ("of the crowd") — to manage the behavior of a large number of virtual arachnids. Pictured on page 66 is a line-drawn rendering of a virtual spider, and a crowd of animated spiders; the convincing film footage of the pit containing thousands of tarantulas is shown above.

The close-up of Asterix covered with virtual spiders required a supplementary technique. The contours of the actor's face had to be captured in 3-D so as to generate convincing virtual spider movement. The footage from two simultaneous film cameras was correlated to create a 3-D model of Asterix's face. Moving shapes were then programmed to crawl on this virtual human. These shapes were replaced by tarantulas which were then luminance-keyed onto the footage of the actor.

"Actually, I thought the effects were quite good," comments Pierce-Roberts with typical British understatement. Despite the maniacal precision required for many of the visual effects, the cinematographer did not feel hampered. "Pitof is very collaborative. He's not at all secretive, the way some visual effects people are. Whenever I asked about an effect, Pitof explained it very well, and he's got a very good crew."

The major restriction to Pierce-Roberts's lighting occurred during the filming of blue- or greenscreen sequences. "We shot a night scene with bluescreen and we could not do a bluish effect, Pitof had to add that later. When we looked at the rushes, I had to make very sure that everyone knew that there was a moonlight effect in the final composite. It was simple stuff, really, and fairly common."

AC asked Pitof if the advent of

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digital technology in cinema would eventually prove as revolutionary as the introduction of sound. He did agree, while offering an unexpected view on his art's evolution: "I'd go even further and say that in the coming years, my specialty, digital visual effects, will disappear. Today, the computer is external to production. When a digital visual effects team arrives on a set, our role is to introduce computers. We do a little of everything — we do some stunts, a little art direction. We touch upon each department.

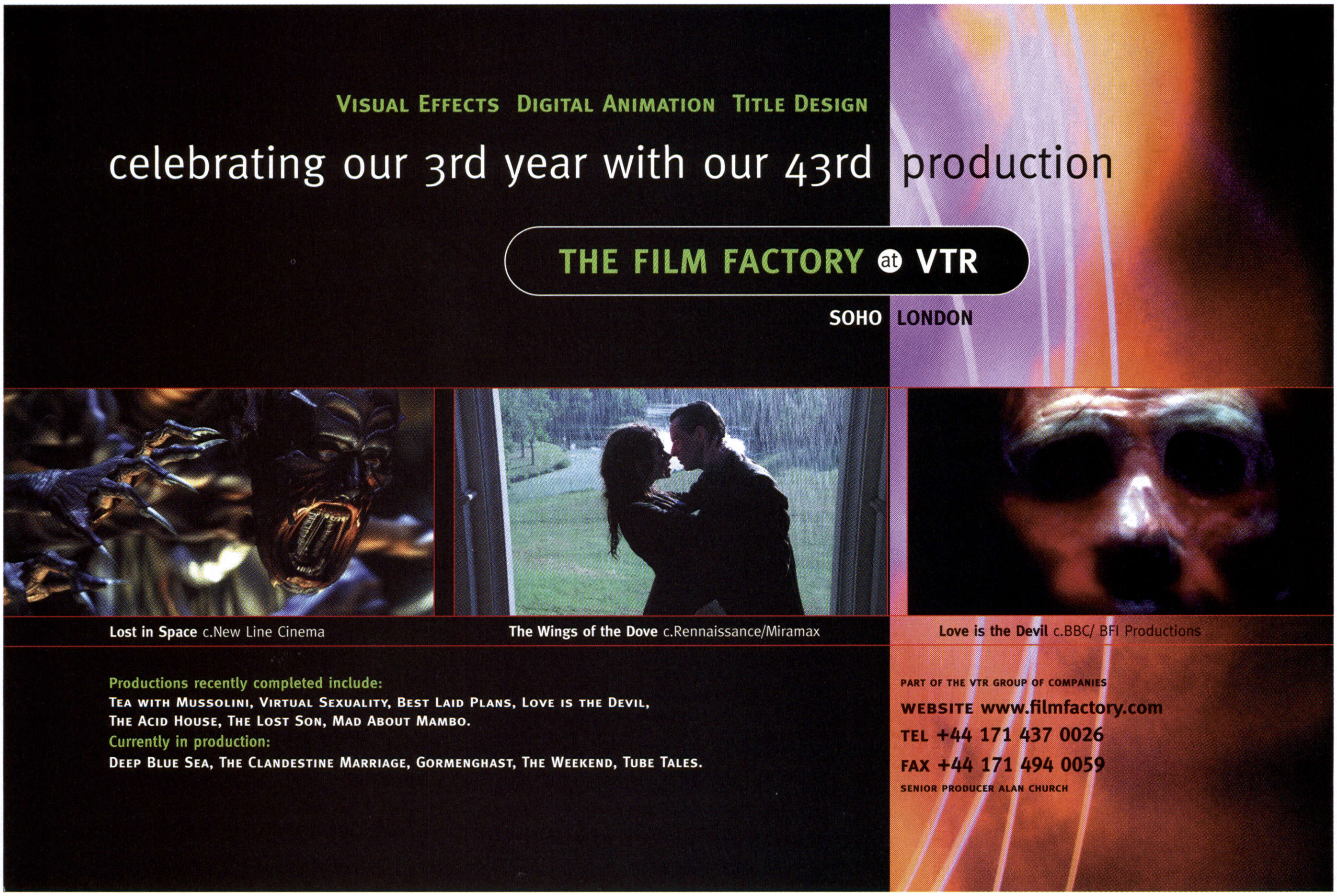
"Today, shooting a bluescreen to create a window is called a visual effect. But when you do the same thing in set decoration by putting up a flat or a painted canvas, it's not called a visual effect. Tomorrow, the fact that something is done on a computer will not make it a visual effect. My digital specialty will soon disappear and be divided among the different departments. That is to say, the people who do sets will do virtual 3-D sets, animal trainers will become virtual animal trainers, stuntmen will do virtual stunts, and so on."

Having predicted himself out of a job, Pitof offers a series of prophecies about the future of virtual cinema. "We should be able to render the human being within the next 10 years. It's a complex problem involving hair, skin and the human face, but 10 years should easily suffice."

For Pitof, the creation of a virtual actor — sometimes referred to as a "synthespian" — is a more formidable task. "Most people talk about cloning an actor like Marilyn Monroe, but what you would really get is a marionette. Creating a marionette is not interesting; it's simply taking Marilyn's appearance and animating it. That's not cinema, it's animation — except that you have a hyperrealistic rendering of Marilyn, instead of Roger Rabbit or a dinosaur. There's still an animator who would tell Marilyn what to do.

"For me, the real 'synthespian' would be a character that you create, but who has his or her own free will — creating a character and having it interpret a role without being a marionette. What fascinates me is the principle of integrating the parameters of a role into a super-powerful computer. You could create the character and have the computer calculate its behavior. Then the game would become confronting a human being with this virtual actor, and discovering the magic as these beings two faced off against each other.

"Despite technology's logarhythmic progression," Pitof adds, "it would require a monstrous technological capacity and competence to synthesize a human being. I hope one day to see it and to be able to work on such a project. I want to *meet* a synthespian." ■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British Resolve

England's venerable film industry marshals its resources and renews its commitment to producing world-class cinema.

by Sam Andrews

For those inclined to look back, a glance at last year's film production figures from the U.K. makes for depressing reading. Despite unprecedented attempts to revitalize its film industry and attract filmmakers to its shores, investment in British film production dropped about 12.5 percent last year to £409 million (U.S. $670.8 million), according to figures from the British Film Commission (BFC). This slide occurred despite the opening of a British Film Office in L.A., sponsorship of this year's American Film Market by the BFC, familiarization visits to London for U.S. visual effects and production executives, and a Labor government seemingly more open to the needs of the film industry than any previous administration.

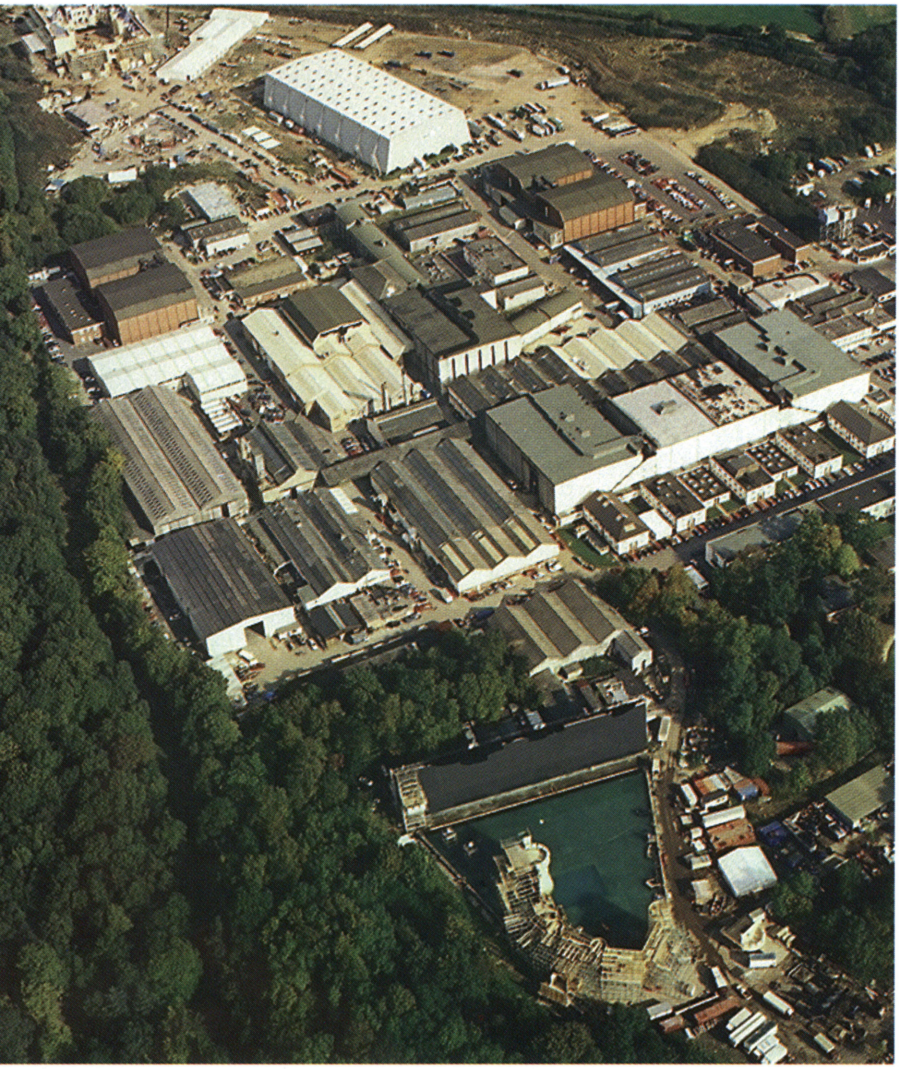
However, the latest figures from the BFC indicate that these efforts may finally be paying off. For the first quarter of 1999, production in Britain has hit a four-year high. Total budgets for some 16 feature films starting production between January 1 and March 11 were £170.74 million ($280 million). Not only is this well over double the 1998 first-quarter figure of £66.69 million ($180 million), but it also puts the 1996 high of £157.2 million ($254.66 million) well into the shade.

Still, before U.K. production professionals begin throwing their hats in the air and ordering new Aston Martins, they would do well to look at what happened in 1998. Like the heads of many other U.K. industries, British Film Commissioner Steve Norris lays the blame on the exchange rate, which has stubbornly stayed above the $1.60 mark. "It is clear from my discussions with the heads of the U.S. studios that the U.K. production sector has been hit soundly by the strength of the pound against the dollar," he said recently.

Norris also blames tax incentives and other financial rewards from foreign competitors such as Australia, South Africa and Canada, pointing to the announcement that the next two *Star Wars* prequels, worth approximately £60 million ($98.4 million), will be moving from Leavesden Studios to 20th Century Fox's new stages in Australia.

Of course, it is not only from overseas that the U.K.'s film industry has taken a pounding. British-based companies such as PolyGram Filmed Entertainment and First Independent (the country's longest-serving independent theatrical and video distributor) failed to survive as stand-alone operations. PolyGram is now part of U.S. major Universal Studios, while First Independent was simply folded by its parent company, United News & Media.

In addition, Columbia Pictures and French producer Le Studio Canal Plus decided to end their partnership in The Bridge, a U.K.-



based joint production venture founded in 1996. Set up with the goal of developing and co-financing films produced in Britain for international distribution, The Bridge managed to produce just one movie, the $5-6 million feature *Virtual Sexuality*.

That said, some major feature films were shot in the United Kingdom last year, including 20th Century Fox's thriller *Entrapment*, Miramax's Academy Award-winner *Shakespeare in Love*, Universal's *The Mummy* and the British-Canadian film *Grey Owl*. The new year has also brought in a number of major productions, such as the new James Bond movie *The World Is Not Enough*, which is currently shooting at Pinewood, Paramount's *Sleepy Hollow*, and DreamWorks' *Gladiator*. Paramount's *Mission Impossible 2* starts production this summer, though portions of the film will also be shot in Australia.

Filmmakers can be encouraged that the government has listened to the movie industry and commissioned a groundbreaking report by the Film Policy Review Group, under the supervision of PolyGram's international president, Stewart Till. Even more promisingly, the current administration has actually acted on the report, announcing plans to restructure the national bodies for film within a single umbrella organization called British Film.

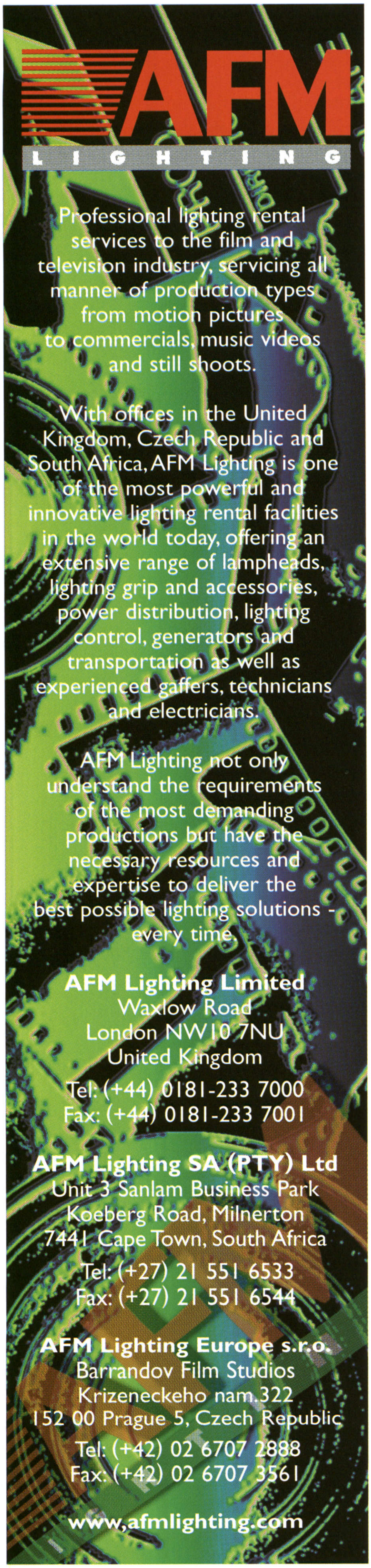
In December, Till announced the formation of the Film Finance Forum. Backed by the government, the new body comprises filmmakers and financiers, and aims to generate more British and European investment in film. It is hoped that the Forum will improve links between London's financial district and the film industry, and also glean expert advice from both sides of the table on specific financial ideas that can be brought to the government.

British Film will launch in April of 2000 with about £27 million ($44.3 million) of lottery cash as funding, and it will decide how at least £20.8 million ($34.1 million) of government funds are spent. The aim is to finally create a coherent strategy for the development of the film industry and film culture as a whole.

In some quarters, however, the news has been criticized as simply "robbing Peter to pay Paul." Film funding bodies such as British Screen Finance found their budgets frozen, and the lottery money earmarked for film was in fact down from an expected £35 million ($57.4 million). One film observer maintained that the news "confirmed insiders' worst fears that the industry may be worse off than under the previous Conservative administration."

If nothing else, the new accent on film should have encouraged more overseas filmmakers to come to Britain. After all, the natives haven't gotten any less friendly, locations haven't been burned to the ground, and technicians are still as competent as ever. Nevertheless, BFC figures reveal that 88 films were wholly or partly shot in the U.K. last year, down from a total of 108 in 1997. These figures are somewhat softened if you add in the big TV movies shot in the U.K., which pushed the total budget level to £445 million ($729.8 million). Even with the inclusion of these TV projects, however, the sector still saw a decline of 8.4 percent in 1997.

Sprawling Pinewood Studios, the de facto headquarters for the James Bond film franchise. This summer, the studio is due to open two new 20,000-square-foot stages and a three-story accommodation block as part of its five-year development plan.



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British Resolve

Although British production declined in 1998, overall figures hit a four-year high in the first quarter of 1999.

At the Department of Culture, Media and Sport (DCMS), spokeswoman Michelle Wallington defends the government's record by pointing to the benefits provided by its tax schemes for film. "Early indications indicate that our enhanced tax incentives to stimulate investment in the production of British films is having a significant impact, with major city institutions moving into film investment for the first time," she says. "For example, Ernst and Young recently announced plans to fully finance and produce its own £30 million slate of feature films."

The drop is naturally causing concern, though. Norris has urged the government to provide financial incentives for overseas moviemakers coming to the U.K. He wants a removal of the £15 million cap on 100 percent first-year allowances, a move that would benefit the producer by around 10 percent. However, there is a possibility that this incentive is in fact under threat from changes to British tax laws that will bring them into line with the rest of Europe.

The BFC has raised its own profile in the U.S. by becoming one of the sponsors of the American Film Market in an attempt to bring more filmmakers to Britain. It used the AFM to launch its latest edition of the Check Book, its invaluable guide to film production in the U.K. "I believe the real value of being a sponsor at the AFM is that it puts the BFC on a public and international platform when much of our work — fundamental to the development of the British film industry — is behind the scenes," says Norris.

Not only is Norris out banging the drum for the wealth of expertise contained within the 24 regional film commission offices, but the BFC has also begun organizing much more targeted familiarization visits to the U.K. It recently brought over U.S. visual effects experts such as John Bruno (*The Abyss, Terminator 2*) and Pat McClung (*Armageddon, Apollo 13*), as well as studio postproduction executives such as Charlie Davis of 20th Century Fox and Amy Harrington of Warner Bros., to view London facilities.

At a local level, Dr. Paul Mingard of Northern Screen, who was one of the first film commissioners in the U.K. and is currently a board member of the Association of Film Commissioners International, says the U.K. film commission network is working to overcome the time difference handicap by using the Internet. "We have the disadvantage of an eight-hour time difference with Los Angeles," Mingard says. "We are working to eliminate that by using e-mail and the Web so that people who request something can have it on their desk straight away. We know we are competing with people in their time zone, and in places such as Canada and South America.

"We're trying to make sure that we are at the forefront of these kind of communications networks to allow producers, location managers or production personnel who want information to get it with the least effort on their part."

Elsewhere, Department of Culture Minister Chris Smith has announced changes to the criteria that determine which films will qualify as British. Out goes the rule that 92.5 percent of a film's running time must be created in the U.K., and in comes the requirements that 75 percent of the budget must be spent in the country and that most of the crew be British, European Union or Commonwealth citizens.

Meanwhile, the government, anxious that the entire nation remains "on message" about film, has launched a new tourism initiative stressing the direct and supplementary benefits that filmmaking brings to the local and regional authorities around the country. Says Wallington, "The effect for the film industry is that they should find it easier to gain access to properties and locations. Rather than having to explain why it might be a benefit to accommodate a film, hopefully there will already be that understanding."

The Labor government has also moved to scotch the feeling that somehow some of its departments are not as helpful as those in countries such as Ireland. Concern was voiced in the press that *Saving Private Ryan* had to use Irish soldiers because British troops were not available. "The idea has been created that we weren't always as helpful as we could be," says Wallington, "so [Film Minister] Janet Anderson wanted to make sure that everyone was aware that it was in everyone's interests for all government departments to be as helpful as possible."

As a result of this new spirit, Anderson has secured a commitment from Minister of Defense

SHOOTING IN IRELAND

by Sam Andrews

Often the envy of its British neighbor, Ireland offers not only spectacular scenery but a range of tax incentives for filmmakers, starting at the scriptwriting stage and going through to royalty receipts for the final project. Although Ireland's 1998 figures for production spending are not yet available, Roger Green of the Irish Film Board surmises that it will be slightly over the £123 million (Irish) attained in 1997 (of which £88 million of local currency was actually spent in Ireland). Last year's figures are likely to be bumped up by DreamWorks' *Saving Private Ryan* and PolyGram's *Angela's Ashes.* "This year is also shaping up well," Green reports. "Ardmore Studios has about six productions going through at the moment. Two are TV series and the others include such films as *St. Patrick* with Patrick Bergen, the Miramax production *All About Adam*, and *Blow Dry*, directed by Paddy Branach."

Ardmore Studios is the largest studio facility in Ireland. With four soundstages (ranging from 3,000 to 15,000 square feet), it claims a state-of-the-art sound postproduction facility, a large range of camera and lighting equipment, and associated film services. Films produced at Ardmore include *In the Name of the Father, The Commitments* and *Braveheart.*

Hannay Studios recently opened in north Dublin. Last year, its one soundstage was the site of production for actor/director Anjelica Houston's *The Mammy.* Hannay hopes to have another soundstage open in the near future.

American productions are the leading overseas filmmakers in Ireland, with British productions next in line. According to Green, the attractions are not simply due to the Irish government's financial incentives. "You get a lot of smaller producers coming here because of Section 481 or our tax incentives," says Green. "But if you are dealing with a company like DreamWorks, they will prioritize because of location, infrastructure and then financial benefits — in that order. It's not just to do with getting extra finance, but making sure that finance you've got is not wasted."

But even if the Irish Film Board stresses the country's inherent advantages, new legislation is being prepared to make Ireland even more financially attractive to filmmakers. A strategic review group will report to the government on ways of introducing a revised tax incentive plan by this coming December. Green concedes, "It should significantly up the stakes." ■

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Doug Henderson to ensure that the MoD is more cooperative with filmmakers. "He has now introduced a system where a single person is assigned as a point of contact for any filmmaker who wants to use MoD land, soldiers or whatever, which has got to make life easier," says Wallington.

As far as 1999 is concerned, the outlook is looking better than 1998. The new Bond movie *The World Is Not Enough* will be in production at Pinewood for at least half of this year. This summer, the studio is due to open two new 20,000-square-foot stages and a three-story accommodation block as part of its five-year development plan. The inward investment is aimed at making Pinewood a complete production venue. "The interest is there," says Pinewood sales and marketing executive Christina Such. "There are always going to be gaps, but the first half of this year is looking very good, and the back end is very positive with the number of inquiries and pencils we've got in place."

Eight features were shot at Pinewood last year, including *Mansfield Park* from Miramax's new U.K. subsidiary HAL; 20th Century Fox's Sean Connery/Catherine Zeta-Jones thriller *Entrapment;* and Warner Bros.' *A Perfect Murder* with Michael Douglas and Gwyneth Paltrow. Facilities such as the large exterior tank have also attracted TV productions, such as the period naval drama *Hornblower* and Hallmark's 10-hour series *The Tenth Kingdom*. The kiddie-TV phenomenon *The Teletubbies* even used the studio's garden.

According to Such, Pinewood has no plans to take advantage of the strong pound and expand into Europe. "We're confident that as the largest studio in the U.K., we've got sufficient resources, and while we continue to invest heavily here, our reputation will continue to be good," she says. "We're attracting U.S. productions because of all the usual factors — we speak the same language, there's a comfort factor, and the technicians we have in the U.K. also play a large part. [European investment] is not something we'd dismiss, but it is not something in our forward thinking."

Such dismisses the exchange rate argument as something of a red herring. "If you go back six or seven years, when the exchange rate was $1.54-1.56 to the pound, obviously we were more competitive, but I think we've progressed. A lot of productions are now made in the U.K. because they have to be — the script says they have to come to here."

> **"We're attracting U.S. productions because of all the usual factors — we speak the same language, there's a comfort factor, and the technicians we have in the U.K. also play a large part."**
>
> **— Pinewood Studios sales executive Christina Such**

Julie Wicks, head of marketing and production at Elstree Studios, which reopened last year after a revamping that saw the creation of two new interconnecting soundstages (each 50' high with 15,000 square feet of space), says that the exchange rate is not nearly as much of a problem as governmental inflexibility. "It would be much nicer to be in Ireland or Canada, where the governments are more supportive of the industry and actually want you to be there," she argues.

On a more positive note, however, is the recognition that the importance of American money is not to be underestimated in the survival and development of the

THE MASTERS' CHOICE

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Alan Parker

"Whether a small film like 'The Commitments' or a giant production like 'Evita', it would be inconceivable for me to think of any company other than Lee Lighting. Not just because their equipment is always up-to-date and at the cutting edge of lighting technology, but because they have a rare and special quality beyond that.

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Alan Parker.

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"I thank my lucky stars that when I leave home, I have a best friend in Europe."

David Watkin

"Terence Donovan once remarked to me that what most annoyed him about Benny and John Lee was their ability to choose men.

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David Watkin

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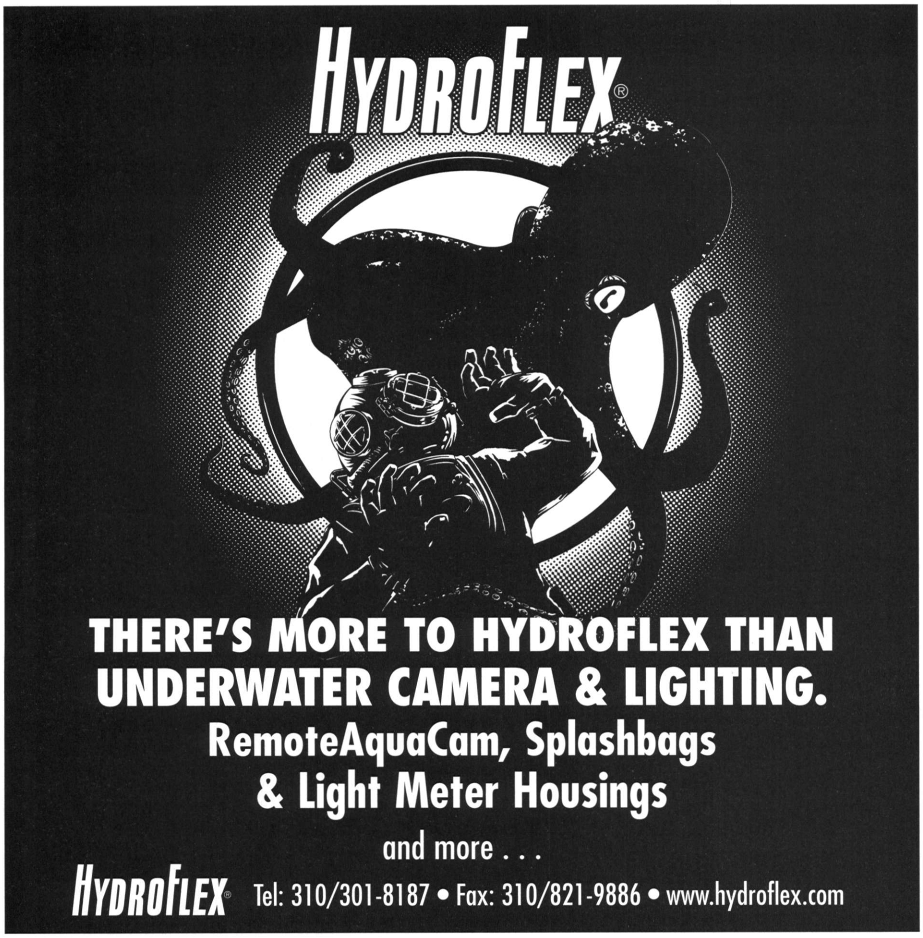
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British film industry. As John Woodward, director of the British Film Institute, said recently, "U.S. dollars spent in British studios are important, because they help keep our craft skills and our production and postproduction infrastructures intact. Only a fool would reject this investment when films such as *Shakespeare in Love* can then carry a powerful message around the world about British heritage."

Daniel Dark, studio manager at Leavesden Studios, says that 1998 was a "relatively good year" and that 1999 looks "reasonable," but that it is relatively quiet as far as the majors are concerned. "The majors are starting to make pictures in blocks rather than over a period of time," he says. "Why that is, I don't know, but our business has always fluctuated. That's why we're very conscious of looking after the home-grown market as well as the overseas sector."

Given the relocation of the *Star Wars* prequels to Australia, Dark is acutely aware of the increased attractiveness of other English-language countries to American filmmakers. "There's no question that both Canada and Australia are strong competition for the U.K. I don't think we as a company can combat that; we have to combat it as a country, and it has to be looked at by the government. You have to improve the incentives for shooting here. Canada has proven that such an approach can work, which is why they are constantly busy. We need something that can principally counteract a strong dollar. It still works at over $1.60, but one can really prove the cost-effectiveness when it gets down to $1.54."

However, Dark is not as worried about increased competition from the rest of Europe: "One has always got to be aware of a threat — competition is a healthy thing — but a great threat? No. At the end of the day, the U.K. is one of the great production countries in the world." ■

Photos by Kevin Cowle, courtesy Scottish Screen Locations.

An Indian crew takes advantage of beautiful Scottish scenery near Glencoe while shooting a dream sequence for the romantic musical *Kuch Kuch Hota Hai* (1998).

INDIAN CREWS IN SCOTLAND

by Sam Andrews

One of the British production scene's barely heralded aspects is the increasing number of Indian producers coming to the United Kingdom. This is particularly so in Scotland, where the Scottish Screen film commission in Glasgow has been active in promoting the nation. According to Kevin Cowle, Scottish Screen's locations operations manager, the connection was made via the Bombay-based British Tourist Authority, which helped to organize a familiarization visit for Indian producers in 1996.

The upshot of that trip is that Indian producers such as the legendary Jash Yohar — often described as "the John Ford of India" — have since shot films in Scotland.

In mid-May, Yohar and first-time director Karan Johar (the producer's son), filmed an extensive song-and-dance dream sequence at a variety of spectacular Scottish locations for the 1998 film *Kuch Kuch Hota Hai.* While shooting at the island location of Inchmaholme Priory, each member of the crew had to be ferried out in a row boat. The movie not only swept the boards at the recent Indian Film Fair Awards, but now ranks as the most successful Indian film ever shown in Britain — earning in excess of $1 million.

Scottish Screen lined up accommodations, a local location manager, equipment from a local company (Lee Lighting), and effects people. As a result of these efforts, Scottish Screen and Cowle received a front-end onscreen credit.

Another major Indian production, *Aarzoo* by director Lawrence D'Souza and producer Vikas Mohan, filmed extensively in Scotland in 1997 and played in the U.K.'s 30 or so Indian cinemas this past March.

According to Cowle, renowned Indian producer Yash Copra is looking to shoot almost entirely in Scotland. "They're not big earners [for the local economy] because they come over so self-contained," says Cowle, "but I don't mind putting the effort in because I reckon it's a really good advert for us."

Ros Davis of the Edinburgh Film Focus office has also collaborated with several Indian productions, and notes that the intercultural communication gap can often be somewhat challenging. "The more we work with Indian filmmakers, the easier it gets, but they work very differently from American and European producers. Quite often, their location hunting process can be quite difficult to pin down. Instead of a script or a description of what they are looking for, quite often they will just say, 'We just need *beautiful*.' And we ask, 'Beautiful what?' — 'Beautiful castle? Beautiful field?'

"As you can see from their films, the Indians work very visually, but that seems to make it rather hard for them to describe exactly what they are looking for."

Some Indian moviemakers also mistakenly believe that the film commission will be able to service all their needs. But as Davis points out, "We're a free service for the initial points of contact — to persuade them to come and to help them facilitate their shoot. But we're not production managers and location managers — it's not our job to take that work away from local people."

The interest in attracting Indian filmmakers to Scotland is so great that one Indo-Scottish entrepreneur — Dundee-based Tony Hussain — is set to establish a small company that offers Indian costumes, as well as lights, cameras, and animation equipment, as well as location assistance.

Hussain is also involved with Dhami Harjender, another member of Scotland's Indian community, who has set up a company called Simbascot Ltd. to make a co-production called *From the Golden Temple to Caxton Hall.* The film will tell the true story of Udam Singh, who was tried in Britain and later hung for the 1930s massacre at the Golden Temple of Amritsar. Says Hussain, "My idea is to bring business into Scotland. There are plenty of good cinematographers, producers and directors here. India makes 950 films a year, so it will be colossal money if I can bring 50 a year to shoot here."

European Snapshots

Film production in Europe is constantly evolving, as evidenced by recent developments in both Germany and France.

by Benjamin Bergery

According to the European Observatory, more than 600 films are produced in Europe each year. The most prolific producers are France, the United Kingdom, Italy, Spain and Germany, but there is a big gap between European budgets and American ones. A significant number of French films, for instance, are shot in Super 16 and blown up to 35mm, while a major feature in Eastern Europe has the budget of a small American independent film.

Another key difference between Europe and the United States is the active role that European governments play in cinema. In almost every country, government funding is an integral part of putting together the money required for movies. Several years ago, the worldwide GATT trade talks was the occasion for European governments, most notably those of France and Spain, to defend what is sometimes called the "cultural exception" to a laissez-faire global economy. Europe argued successfully that government cinema subsidies should be allowed in order to give European films a better chance to compete with American pictures.

American movies dominate the box office in Europe, as they do in the rest of the world. In fact, Europeans often go to see dubbed American films rather than films made in their own or neighboring countries. In many regions, national features account for less than 10 percent of the box office. France is the exception, but even there, French films average a third of theatrical admissions.

Developing an audience is the central problem for the European film industry. While subtitled European films get marginal play in the U.S. (less than two percent in 1998), foreign distribution of dubbed American films accounts for half of all revenues. Unable to pierce the American market, European films have had to rely on their own markets to survive. This is especially difficult for smaller countries, such as the Benelux nations, whose national box office cannot support more than a handful of features. Like Ireland, Luxembourg has developed a system of tax shelters to lure foreign productions such as the 20th Century Fox sci-fi feature *Wing Commander* (directed by Chris

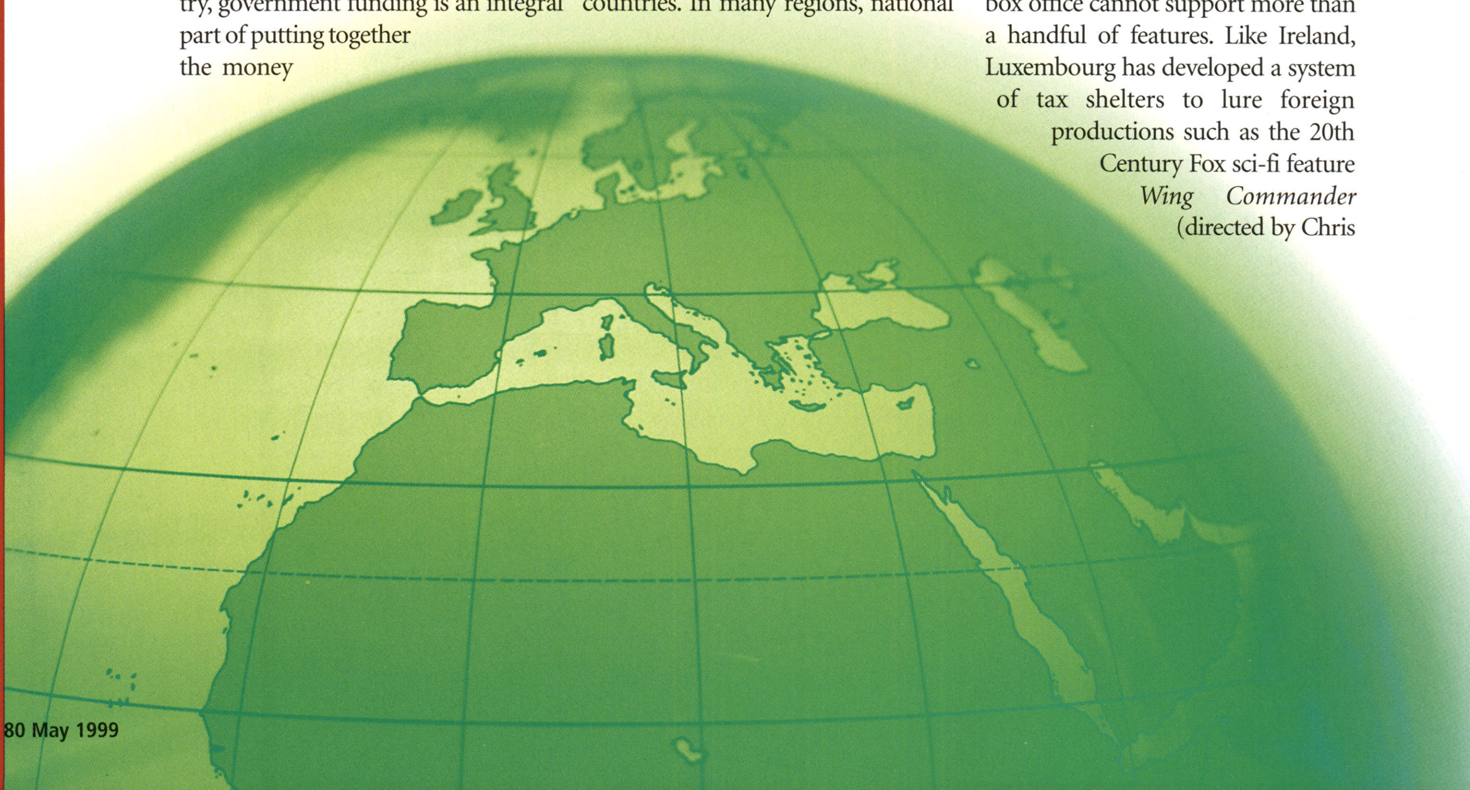

Photo by Sergio Strezzi, courtesy of Miramax.

Robert Benigni's tragic comedy *Life is Beautiful* earned the Italian actor/director Academy Awards for both Best Actor and Best Foreign Film. A huge financial success, the picture has earned more than $40 million in the U.S. alone.

Roberts and shot by Thierry Arbogast, AFC).

In the long term, the survival of European cinema may well hinge on the emergence of a single European audience, rather than an appeal to the American masses. To foster cross-pollination, the European Union allocates funds under the Eurimages Program, which requires that a film have co-producers from three European countries. While this clause has encouraged cross-border collaborations between European crews and service providers of different nationalities, it has sometimes led to "europudding" productions that are forced to shoot in several different countries in order to satisfy budgetary needs rather than story points.

Is there such a thing as a truly European film? Not yet. There's far more difference between a Spanish film and a Swedish one than there is, say, between a film shot in New Orleans and one made in Seattle. Manuel Pereira's *Between Your Legs* is a showcase for the new brash style of Spanish comedy. *Asterix and Obelix Versus Caesar* (see feature on page 62) was shot by English cinematographer Tony Pierce-Roberts, BSC, but it remains intrinsically Gallic. Roberto Benigni's Oscar-winning fable *Life Is Beautiful* is nothing if not Italian, while Thomas Vinterberg's powerful *The Celebration* has a Nordic chill to it. Indeed, the key to European successes may well lie in continued cultural specificity. Or, as the French say, "Vive la différence."

There are a few exceptions to this specificity, usually shot in English with a view to the American market — most notably, director Luc Besson's *The Fifth Element* (also shot by Thierry Arbogast), which was a box-office hit in both America and Europe. (For production and visual effects details, see *AC* May 1997.) Shot in English in Britain, and starring Bruce Willis, the film is on a par with any American action-adventure movie. Besson and Arbogast recently teamed again to shoot a more distinctly European story, *Joan of Arc.*

At the other end of the spectrum is Dogma '95, a cry of protest against "decadent," "bourgeois" and "cosmetic" cinema that was authored by Danish filmmakers Lars von Trier and Thomas Vinterberg. In outlining their philosophy, the duo penned a "Vow of Chastity" (see sidebar on page 84) that is provocatively austere, if not downright puritanical. But behind all the hype is a plea for character-driven drama.

Von Trier's stunning *Breaking the Waves* (see Production Slate, *AC* Dec. '96) was shot by Robby Müller, BVK, NSC on 35mm film, and then transferred to digital video and back to film with the aim of degrading the imagery to give it a uniquely rough texture. *The Celebration*, the compelling family drama by Vinterberg, was shot by Anthony Dod Mantle with a consumer DV video camera, yielding a low-resolution impressionistic image that works well with the film's home-movie theme.

European Snapshots

To many Germans, Tom Tykwer's inventive and kinetic *Run, Lola, Run* (shot by Frank Griebe) represents the upcoming German cinema. While previous box office successes were limited to comedy, *Lola* is an intelligent thriller, representing a new direction that has international appeal.

Photo by Bernd Spauke, courtesy of Sony Pictures Classics.

What keeps coming back like a refrain when you talk to European filmmakers is the C-word: "culture." For many Europeans, the struggle to keep their traditional cinemas in the face of overwhelming American domination is a matter of cultural survival. Movies are considered to be as much a part of the cultural heritage as buildings, books and paintings. This attitude is shared throughout the industry, and underlies the different visions of the world-class festivals in Cannes, Berlin and Venice. It is telling that Europe also sponsors the only two festivals devoted exclusively to the art of cinematography: MadridImagen in Spain and CamerImage in Torun, Poland.

The European continent offers a solid infrastructure for visiting filmmakers. There is a tradition of film crafts among local crews that stretches back to the Twenties. Of course, many foreign films come for the scenery. Europe's historical locations are a natural for period pieces, and many productions traditionally seek out the beautiful sunny charm of settings in Italy, the Riviera, Spain and Portugal.

Over the past 10 years, many European soundstages have been renovated to suit the requirements of modern filmmaking, and the expertise of the Continent's digital postproduction houses is on a par with that of U.S. effects outfits. Soundstages that have recently housed major foreign features include the legendary Cinecitta in Rome, the Eclair and Arpajon studios in Paris, the Bavarian Studios in Munich, Babelsberg in Berlin, Barandov in Prague and Mafilm in Budapest.

"We strive for the Hollywood look, and everyone asks us for a Hollywood look. Well, try to do that with one gaffer, three electricians and one grip. That's what we're up against."
— BVK president Wolfgang Treu

Eastern Europe, meanwhile, is the Wild East of European cinema. Poland, Hungary and the Czech Republic are rapidly restructuring industries that were held prisoner for 40 years by Soviet bureaucracy and censorship. Farther to the east, contemporary Russia is sometimes downright dangerous. There are persistent rumors of productions being subjected to Mafia payoffs, and one American cinematographer claims to have witnessed a real-life machine-gun spraying in an elegant hotel restaurant in Saint Petersburg. Fortunately, reality isn't like the movies: the gunmen quickly ran out of ammunition and fled the scene.

Prague is perhaps the best example of Eastern Europe's comeback. The vast Barandov Studio has welcomed big films such as *Mission Impossible* (see *AC* June '96), *The Barber of Siberia* and, more recently, Besson's *Joan of Arc* (which also shot at Eclair Studios in Paris). Foreign producers of features and commercials seek out Prague for its beautiful locations and cheap labor — advantages which can be offset by increasingly expensive accommodations.

Obviously, a detailed look at the variegated richness of European production is beyond the scope of this article — it would require several issues of *American Cinematographer* in order to do justice to the 15 countries in the European Union. However, to get a taste of the possible evolution of cinema in Europe, we looked at the contrasting production models in Germany and France.

Germany is the biggest television producer in Europe, while France produces the most features. Germany is highly decentralized with regional centers for production, while France has centralized production in Paris. It may well be that Germany's regional approach to filmmaking is the true model for the future of European production, and such a regionalization may evolve according to production specialities. In Spain, Madrid is the traditional center for features, while many commercials are shot in Barcelona. In Italy, films have long been made in Rome, while Milan has emerged as the city for commercial shoots. Perhaps even in France, the southern cities of Marseille and Nice may one day provide an alternative to Paris. Is Europe destined to be a nation of regions? Only time will tell.

Photo by Lars Hogsted, courtesy of October Films.

The bleak drama *The Celebration*, directed by Thomas Vinterberg, was shot by Anthony Dod with a consumer DV camera, yielding impressionistic images that work well with the film's home-movie theme.

Germany in Close-Up

German production reflects the federal structure of its government, which breaks the country into a dozen *"laenders"* — states with a great deal of autonomy in political, economic and cultural matters. Traditionally, film production has been based in the laenders centered around Munich, Berlin and Hamburg, which have both an established infrastructure and generous subsidies to attract film projects. Due to a recent increase in film subsidies, Cologne's laender is the new up-and-comer.

Wolfgang Treu is the president of the *Bundesverband Kamera* (BVK), the German equivalent of the ASC. Unlike the ASC, the BVK includes camera assistants, and has an impressive membership of 400 people, reflecting the breadth of German crews. Treu notes that many German cinematographers are also working in America, citing Michael Ballhaus, ASC, Jost Vacano, ASC, BVK, Robby Müller, BVK, NSC, and, more recently, Walter Lindenlaub, ASC, BVK as examples.

According to Treu, some 50 German features are produced every year. However, the small budgets mean that there is often a thin boundary between German features and television movies. "Our film industry is amphibious, neither fish nor fowl," he notes. "It's not really pure cinema, but rather half television and half film. We strive for the Hollywood look, and everyone asks us to produce a Hollywood look. Well, try to do that with one gaffer, three electricians and one grip. That's what we're up against."

Despite these daunting conditions, German cinematography is distinguished by its consistently high quality. Treu explains that most German cinematographers light and operate. He recalls a story told by fellow cameraman Jost Vacano. "Jost said that when he asked for an operator in Germany, the producer answered, 'I can't afford one more person.' Then he went to America and wanted to operate as he was used to doing in Germany, but the producer told him, 'I can't afford that, it will go faster if you're not doing two things at once.'"

Germany may well be the biggest producer of television fiction on the continent. As in the rest of Europe, most German television is shot in Super 16. Treu proudly credits the BVK's lobbying with television stations for the widespread adoption of letterboxing by German broadcasters. In addition to the laender subsidies, television stations are also key to feature funding in Germany, as is the case in much of Europe. Indeed, many television stations contribute funds to the laender subsidies, and sit on the regional committees that green-light projects.

Treu notes that Hamburg is the center for commercial production in Germany. In addition, Studio Hamburg hosts many television productions, and a few features. Letterbox, a small production company based in Hamburg, illustrates the "amphibious" nature of German production, and also its newfound dynamism. Four years ago, Letterbox produced a TV movie with director Rainer Kaufman entitled *Talk of the Town,* which went on to become — against all odds — the country's number-one theatrical movie. The company now has a distribution deal with Warner Bros. and is releasing three features this year, including Kaufman's latest offering, a film noir titled *The Long Hello and Short Goodbye* (shot by Klaus Eichhammer).

To many Germans, Tom Tykwer's inventive and kinetic *Run, Lola, Run* (photographed by Frank Griebe) represents the upcoming German cinema. While previous box-office successes were limited to comedy, *Lola* is an intelligent thriller, representing a new direction that has international appeal. (The film recently screened at the Sundance Film Festival, and will be featured in an upcoming issue of *AC.*) Another recent film of note is *Night Shapes,* Andreas Dresen's original episodic journey through Berlin. Shot by Andreas Hoffer, the picture was the toast of this year's Berlin Film Festival.

AC asked Henrik Meyer, the young president of Letterbox, to explain the complex rules for laender funding. "We call it the laender effect; you have to spend 150 percent of the money you get in the region to support the local economy. Sometimes we have a bigger effect and we have to document that. Each subsidy is negotiated on a film-by-film basis.

"We currently have 16 applications for subsidies, and it's a lot paperwork," he attests. "We sometimes have 300-page proposals that are photocopied 16 times. When we do get a subsidy, it requires very strict accounting controls. When we get money from the box office or distribution deals, we have to give the money back to the laenders, pro rata, at certain points in time."

The new German Arts Minister, Michael Naumann, is trying to loosen the restrictions of the laender system. He is quoted as critizing "the grotesque prerequisites" for laender "effects," and has called for a national forum to consider reforms.

Meyer is more matter-of-fact in his appraisal of the situation, emphasizing the importance of public monies in a country whose industry needs to be self-sufficient. He notes, "The German-language film market is not that big. You need a certain amount of money to finance movies that have a chance to look as good as foreign movies. At present, there's no other way to finance movies than subsidies."

THE VOW OF CHASTITY

In response to the technological changes that have fundamentally altered the filmmaking landscape in recent years, Danish filmmakers Lars von Trier and Thomas Vinterberg designed the following "austerity" agreement for themselves and other filmmakers to follow:

I swear to submit to the following set of rules drawn up and confirmed by DOGME '95:

1. Shooting must be done on location. Props and sets must not be brought in (if a particular prop is necessary for the story, a location must be chosen where this prop is to be found.)
2. The sound must never be produced apart from the images, or vice versa. (Music must not be used unless it occurs where the scene is being shot.)
3. The camera must be handheld. Any movement or immobility attainable in the hand is permitted. (The film must not take place where the camera is standing; shooting must take place where the film takes place.)
4. The film must be in color. Special lighting is not acceptable. (If there is too little light for exposure, the scene must be cut or a single lamp must be attached to the camera.)
5. Optical work and filters are forbidden.
6. The film must not contain superficial action. (Murders, weapons, etc. must not occur.)
7. Temporal and geographical alienation are forbidden. (That is to say that the film takes place here and now.)
8. Genre movies are not acceptable.
9. The film format must be Academy 35mm.
10. The director must not be credited. Furthermore, I swear as a director to refrain from personal taste! I am no longer an artist. I swear to refrain from creating a "work," as I regard the instant as more important than the whole. My supreme goal is to force the truth out of my characters and settings. I swear to do so by all the means available, and at the cost of any good taste and any aesthetic considerations.

Thus I make my VOW OF CHASTITY.

Copenhagen, Monday 13 March 1995
On behalf of DOGME '95
Lars von Trier and Thomas Vinterberg

To help attract foreign productions, many laenders have set up American-style film commissions. Roland Schmidt, the film commissioner for the Berlin-Brandenburg region, states that his group will sometimes go so far as to do some initial location scouting for faraway productions. Schmidt estimates that between 10 and 15 feature films are shot locally each year. "Here in Berlin," he says, "we have the feeling of a boom in production."

Berlin has many soundstages, including the vast Babelsburg complex, outside the city. In addition, Schmidt notes that Studio Hamburg has recently moved into the area, buying and renovating the Adlershof stages in Berlin. "Their facility is already almost completely booked, and they are thinking of expanding. I expect them to grow quickly." Schmidt feels that the competition between Babelsberg and Studio Hamburg will be healthy for production in the region.

The Bavarian Studios in Munich, traditionally the center for German feature production, have also undergone renovations. In keeping with the increasing European nature of production, the biggest recent production at Bavaria was the French film *Asterix and Obelix Versus Caesar*. Producer Meyer explains that "most of the production companies are based in Munich, and most of the directors and actors live in Munich. Recently, however, many actors are moving to Berlin, because it's an exciting place. I think that Berlin will become a cultural center, but it will never be like Paris is in France because we have this federal system."

Schmidt explains that the laender subsidies are set up for cultural diversity as much as for economic development. "If you sum up all of the money available for movies in Germany, you could only service a handful of big American budgets. From my point of view, making big pictures is not what public money is for. It's not just a question of getting your investment back, it's also a question of cultural identity. On the one hand, the laenders want to develop their own media industries. But on the other hand, it's also a question of producing something for your heritage. That requires diversity and a lot of experimentation, which also means cheap production. The next generation has to train with low budgets to become good filmmakers."

But will German filmmakers make "European" films? Producer Meyer answers, "I think there is a 'European' film, but it has different nationalities. I don't know how or why that should change. There's a reason to admire French movies. Germans have a strange sense of humor, as do the British, but [all of the European countries] are very different. So it's really a matter of different cultural backgrounds."

Adds commissioner Schmidt, "In my heart I'm a European, and I think that there is a growing awareness of European films in the German audience. People are willing to go see an Italian film once a year, a French film once a year, a British one six times a year. If this continues…"

France in Close-Up

Although the U.K. welcomes more American productions than any other European country, France has hosted its share of U.S. features. Recent American-produced films include *The Man in the Iron Mask* (directed by Randall Wallace and shot by Peter Suschitzky, BSC), John

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The ambitious yet modestly budgeted 20th Century Fox sci-fi film *Wing Commander* took advantage of European filmmaking expertise and tax shelters by shooting in Luxembourg.

Photo by Steve Braun, courtesy of 20th Century Fox.

Frankenheimer's *Ronin* (lit by Robert Fraisse, AFC, as detailed in *AC* Oct. '98), Roman Polanski's *The Ninth Gate* (photographed by Darius Khondji, ASC, AFC) and Alain Berliner's *Passion of Mind* (shot by Eduardo Serra, AFC).

French production companies are increasingly willing to produce big-budget English-language films aimed at the American audience. The French major Gaumont has led the way by bankrolling the aforementioned Luc Besson films *The Fifth Element* and *Joan of Arc*. This year Gaumont is producing the period piece *Vatel*, directed by Roland Joffe and starring Gerard Depardieu, Uma Thurman and Tim Roth.

France produces more films than any other European country (the 1998 total was approximately 150). The budgets are low by American standards; about half of the movies are made for less than $3 million. France's numerous films are fueled by national subsidies funded by a tax on box-office receipts, and managed by the CNC (National Center for Cinema). As in other European territories, the other key ingredient to French financing is television, with a lion's share of funding provided by pay-TV giant Canal Plus.

Four out of 10 French films last year were made by first-time directors. And with so many first-timers at the helm, there are a considerable number of box-office misfires. Director of photography Pierre-William Glenn, the president of the *Associacion Francaise des Directeurs de la Photographie Cinematographique* (AFC), the French equivalent of the ASC, likens the situation to research. Glenn says, "I'll be the first to admit that French films can be extremely boring; I've seen 35 films this year that stunk. But like any leading-edge industry, cinema needs research and development. The CNC guarantees such research by enabling young people to express themselves. They won't all be lasting filmmakers, but inventive first films are a guarantee of a cinema that is truly independent with new forms of storytelling. Cinema in France is not just a product, but part of our culture."

The French proclivity for experimentation has borne fruit in the area of cinematography. Gallic cameramen such as Arbogast, Fraisse, Khondji and Serra, to name a few, are sought out worldwide. The recent Cesar (the French version of the Oscar) nominations highlighted the continued creativity of French cinematography. *Those Who Love Me Will Take the Train,* an anamorphic film by Patrice Chereau, features stunningly poetic handheld cinematography by Eric Gautier. The surprise hit *The Dreamlife of Angels,* from director Eric Zoncka, showcases the beautiful realism of cinematographer Agnes Godard, while the work of director of photography Laurent Dailland lends a lush elegance to Nicole Garcia's *Place Vendome.*

The major French soundstages in the Paris region are Eclair Studios, at Epinay outside Paris, and the vast Arpajon complex, located south of the capital. The Eclair group also includes a world-class laboratory. Eclair and the other major French labs, LTC and GTC, have been pioneers in the area of custom-processing techniques such as bleach-bypass and other silver-retention processes. This leading French role may be due to the possibility of experimentation on small projects; such experiments would be more difficult at American facilities handling larger volume.

Foreign filmmakers have traditionally sought out locations on the Riviera in the South of France. The region that spans from Marseille to Nice offers beautiful and sunny natural locations, and connotations of glamour. The major soundstage is the Studio de la Victorine near Nice. Recent surprise hits from the area have put the region back in the news. Gérard Pirès's hyperkinetic action thriller *Taxi,* lit by Jean-Pierre Sauvaire, was one of last year's biggest hits, while Robert Guédiguian's warm-hearted comedy *Marius and Jeannette,* shot by Bernard Cavalié, drew critical and popular acclaim. The city of Marseille is studying the development of a media center to attract more productions.

Pascal Bécu, the marketing director for Arpajon Studios, states succinctly that "the biggest handicaps for American productions in France are the language barrier and high social costs." Bécu adds that productions in the future may include increasingly integrated European crews. "*The Man in the Iron Mask* had a mixed French and English crew at Arpajon," he notes.

Paradoxically, French crews also have more experience than most on low-budget shoots. Top French cinematographers, for example, routinely alternate between big-budget features and ultra-low-budget art films. “French crews are used to doing more with less,” opines Glenn. He cites maverick director Philippe Garrel as an example of high quality on a low budget. Garrel’s latest lyrical offering, *Night Wind,* is beautifully photographed by Caroline Champetier. Glenn goes on to assert that French filmmakers’ experience with tight budgets can make for a more efficient shoot, offsetting the social-cost differential.

French digital effects maestro Pitof is well qualified to compare American and European costs. Pitof and his collaborators from the Duboi effects house spent months on the 20th Century Fox lot in Los Angeles crafting the effects for *Alien Resurrection* (see *AC* Nov. ’97). He laughingly compares this French enclave at the studio to the Gallic village depicted in *Asterix and Obelix Versus Caesar.* “We created a little village of Frenchmen there, complete with cigarette smoking and loud techno music.”

Pitof confesses, “My dream is to make American films in France. The American production system is wonderful, but there is a certain heaviness to it. It would be great to create a compromise between the American way and the French way. We all use the same machines and the same software. There are certain American films which would profit from French craft. They could get better quality at a cheaper cost.

“Although France has higher social charges than America, when you look at the overall budget, France is cheaper,” he concludes. “When I make a parallel between *Alien Resurrection* and *The City of Lost Children,* I realize that both films had the same director, Jean-Pierre Jeunet, and were based on a similar principle of creating an imaginary world. However, the American budget was almost five times higher.” ■

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Tuned-In Talents

Photo by Tony Kooyman, courtesy of CCS.

The American Society of Cinematographers honors 1998's top creators of televised images.

by Christopher Probst

On February 21, the American Society of Cinematographers held its 13th annual ASC Outstanding Achievement Awards to honor excellence in the cinematographic craft. The festivities were held at the Century Plaza Hotel in Century City, California, where an audience of some 1,500 people gathered — including directors of photography and their families, friends, and many of their industry associates.

Among the evening's highlights were the presentations of ASC Awards to directors of photography working in the televisual medium. The work of 10 deserving nominees was recognized in two categories: Regular Series and MOW/Pilot/Miniseries. Following is a survey of these 10 cinematographers and details on the programs for which they were nominated.

REGULAR SERIES

James L. Carter

Michael Hayes, "Imagine"

James Carter's path to his career as a cinematographer is an excellent example of the sense of community shared by the field's practitioners. After graduating from the San Francisco Art Institute, Carter managed to get the name of the agent who represented his favorite cinematographer, Vilmos Zsigmond, ASC. Desperate to land an apprenticeship with the famed Hungarian cameraman, Carter called the agent every two weeks for six months,

until, one fateful day, a note from Zsigmond himself appeared in Carter's mailbox.

"I almost had a heart attack," Carter recalls. "In the letter, Vilmos wrote that I was welcome to come and observe him shooting a movie. He also gave me his phone number, so I called him and we sort of struck up a bit of a friendship. When Vilmos shot the movie *Obsession* for Brian De Palma, I went with him to locations in Italy, New Orleans and L.A., and watched him light. In Italy, they let me load magazines and do the slates in exchange for my room. That was a great deal for me because I had planned to pay for everything on my own."

A year after returning home, Carter encountered De Palma at the San Francisco Film Festival, and got his address and phone number so he could mail the director a photo he had taken during the *Obsession* shoot. "When I called to make sure that he'd gotten the photo," reveals Carter, "he told me he was doing this film called *Carrie*, and offered me a job as a production assistant. That job allowed me to meet some people, including the AD, Don Heitzer, who became a good friend. Don introduced me to Allen Daviau [ASC], who gave me his phone number and said, 'Whenever you have a question, call me and I'll answer anything that I can, but there's one condition.' I asked what that was, and he said, 'Someday, someone will start calling you like this to ask you questions. You have to do the same for them as I'm doing for you.' I agreed, and I then had this fountain of information — Allen Daviau — who said I could call him! So I'd call him saying, 'I'm shooting with a video monitor, and I have no idea how to set it up!' He would then take me through it step by step. And I didn't just call him once or twice — I called at least 30 times! Even if he was out of town, he'd call back and say, 'I got your message. What do you need?'"

Carter notes that he has also had several other mentors who helped him along the way, including another notable Hungarian cameraman, Laszlo Kovacs, ASC.

After those seminal experiences — and some prolonged stints as a gaffer and an operator — Carter gained experience as a cameraman in the independent film arena, shooting such diverse titles as *One False Move, Destiny Turns on the Radio, Back to Back, Spaced Invaders* and *The Texas Chainsaw Massacre III* before segueing into telefilms with *Payback, Justice in a Small Town, Convict Cowboy, Grand Avenue* and *Ruby, Jean and Joe.*

The ABC courtroom drama *Michael Hayes* was Carter's first foray into episodic television, and 1998's nominated episode, "Imagine," marked a distinct turning point for the series, as the episode's director, Michael Pressmen, had also taken on the role of co-executive producer. "Michael revamped the series," notes Carter. "We began doing more shots that would start on one person, go down to their hands, and then pan back up to someone else. Instead of doing a master and coverage, we began doing a lot of tighter, longer-lens shots, and then shooting other pieces that would cut in with them. We had a dolly grip named Cliff Sperry who was awesome, so we would just dolly around while on a 75mm or 100mm lens, finding bits of information in the action and performances. We tried to do things without having to resort to insert

13TH ANNUAL ASC AWARDS TELEVISION NOMINEES

REGULAR SERIES

James L. Carter
Michael Hayes, "Imagine"

Hugo Cortina
JAG, "Gypsy Eyes"

Robert McLachlan, CSC
Millennium, "Skull and Bones"

Joel Ransom
The X-Files, "Travelers"

Bill Roe *
The X-Files, "Drive"

MINI-SERIES/MOW/PILOT

Thomas Burstyn, CSC
When Trumpets Fade

Michael Goi
The Fixer

Ron Garcia, ASC
The Day Lincoln Was Shot

Robbie Greenberg, ASC *
Winchell

Shane Hurlbut
The Rat Pack

(* Denotes winner)

Opposite: Many of the ASC Awards participants attended the Nominees Dinner held at the ASC Clubhouse in Hollywood on February 19. All of the Awards nominees were given a plaque to commemorate the event. Front row, from left: Awards chairman Bud Stone, Presidents Award honoree Al Mayer Sr., Lifetime Achievement honoree Vilmos Zsigmond, ASC, International Award honoree Giuseppe Rotunno, ASC, AIC and Karl Struss Heritage Award winner Lisa Marie Wiegand. Second row, from left: nominees Joel Ransom, Hugo Cortina, Ron Garcia, ASC, Thomas Burstyn, CSC, and Robert McLachlan, CSC; Society sergeant-at-arms Dean Cundey, ASC and Karl Struss Heritage Award winner Jonah Paul Torreano. Back row, from left: nominee Shane Hurlbut, Awards co-chairman Owen Roizman, ASC, nominees Bill Roe, James L. Carter, John Toll, ASC and Michael Goi, and Society vice president Laszlo Kovacs, ASC.

shots. Any time we had an exchange of information — for example, someone handing someone else a photograph or map — we'd try to incorporate that action into the shot so that the audience could see it happen without us having to cut to an insert."

Carter photographed *Michael Hayes* with Panavision cameras and almost exclusively with Primo 4:1 (17.5-75mm) and 11:1 (24-275mm) zooms. The cinematographer shot approximately 75 percent of the show on Kodak EXR 5298, while occasionally using 5248 and 5293 for day exteriors and interiors.

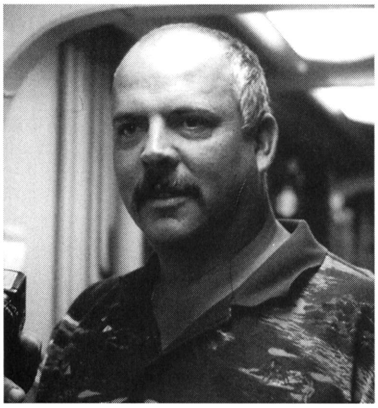
"I'm a heavy mixer of color temperatures," Carter relates. "I truly believe in letting things go. If the outside was slightly blue and the inside was really warm, that was great. When I did daylight scenes, I'd make the sunlight slightly warm. When we'd go out on the streets at night, every so often I'd let things in the backgrounds go that fluorescent blue-green. I felt that made things look a little more real, a little more like New York, instead of always trying to correct everything out. I have a gel pack for a sodium-vapor effect that I call 'moldy pumpkin.' Depending on how I feel on the day I'm shooting, it consists of ½ CTO and pale or light Salmon. I like that weird orangy-pink color. I remember reading a study about streetlight colors, and it said that there is more crime in areas lit by sodium-vapor lights, as opposed to mercury-vapor lights. With that in mind, whenever things got really gritty, or we were in a scuzzy area, I would used those sodium-vapor colors. I think it's an oppressive look."

Hugo Cortina

JAG, "Gypsy Eyes"

An Emmy nominee last year for the *JAG* episode "The Good of Service" (see *AC* Oct. '98), director of photography Hugo Cortina continues to imbue this Donald P. Bellisario-produced CBS drama with a variety of dynamic visuals and larger-than-TV production values. The episode "Gypsy Eyes" earned Cortina his first ASC Award nomination.

Asked about his stylistic approach to *JAG*, Cortina replies, "I change the look of the show for every episode. Depending on the narrative, I'll change the filtration, the lighting, and the contrast. The exact filtration and contrast of each episode varies according to the nature of the script and the locations, as well the seasons [depicted in the show]. Right now, we're coming out of our winter, in which everything has been extremely cold and blue — we used [GAM 830] North Sky Blue gels, because the blue has some green in it. But as we get into summer-based material, I'll start to add more yellows and warmth."



The second half of a two-part installment, "Gypsy Eyes" follows *JAG* protagonist Navy Lt. Cmdr. Harmon "Harm" Rabb Jr. (David James Elliot) as he searches for his father. "In the earlier seasons," explains Cortina, "we learned that his father is missing in action, and in the first part of this episode, Harm's search takes him into Russia. 'Gypsy Eyes' was different because we had several extremely large sets to light at night, animals, jets and helicopters — you name it. It featured a wide variety of all the stuff we do week to week."

Since the episode was set almost entirely in "Russia," Cortina devised several parameters for the narrative's location. "I tried to enhance the blacks and make the look as cold as possible," he submits. "I shot the exteriors without an 85 filter and used a ½ White ProMist. To enhance the idea of it being very cold, dark and high-contrast, we used a lot of negative fill in order to make the shadow side of the actors' faces go dark."

As the tale continues from the first part of the episode, Harm hijacks a Russian MIG fighter and crashes the plane in a forest. These flying sequences were among the few that were shot on *JAG*'s existing sets in Valencia, California, just north of Los Angeles. "We shot some greenscreen, as well as some poor man's process on our sky set, where we have a mockup of an F-14 cockpit," Cortina details. "The mockup is situated in front of a blue sky backing, and we then blow liquid nitrogen by the windows to make it look as if the jet is going through clouds. We usually shoot the plane from a stage crane, which allows us to float the camera up and down, and we also use a Panatate to add some banking and rolling motions.

"To light the cockpit shots, we have a twin set of custom-built 2Ks attached to an aluminum tri-frame arm that spans across two parallels on a rolling track. We just push that crane arm forward and backward to get the effect of the jet yawing a little bit, and then boom the lights up and down to make it look as if the plane is either climbing or swooping down."

The episode's post-crash sequences were shot over the course of several 18-hour days at woody locations near the top of Mount Wilson in the Angeles Forest. "We had some big night exteriors there," Cortina recalls. "[To accentuate the harshness of the environment,] I silhouetted the actors a lot with moonlight — uncorrected 4K HMI Pars with some ½ Plus Green — and had a campfire lighting their faces.

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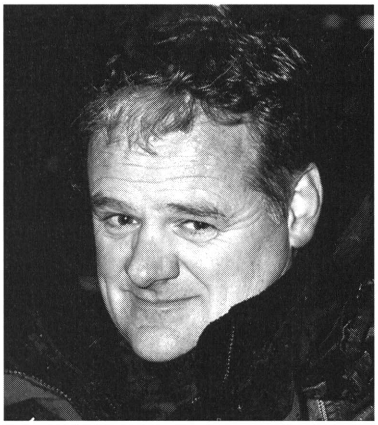
The 4Ks were positioned on the ground, uplighting the trees and backlighting smoke coming from several big Ajiba smoke machines.

"We then continued the shoot at these enormous blimp hangers in Tustin, where we had several helicopters landing in front of the immense hangars — which were over 200' tall and 1,200' long — that we used as our background pieces.

"We finally ended up shooting at the train station in Filmore," he concludes. "And this was all in one episode! As Harm tries to escape Russia by train, he's intercepted. For the beginning of the scene, I photographed a beautiful, warm sunset as the characters arrived at the station. The sequence then transitions into night, where we had a lot of steam coming from the tracks, which we backlit with units on the ground. We used lots of long lenses racking down the length of the train, and also did a few wide shots to really sell the production value."

Robert McLachlan, CSC

Millennium, "Skull and Bones"



Now finishing his third season on the Chris Carter-produced Fox chiller series *Millennium,* Robert McLachlan, CSC has been honored for two years in a row, after earning an ASC Award last year for the episode "Thin White Line" (see *AC* May '98). The Canadian cinematographer has shot a broad range of material, including the television series *Strange Luck, The Commish, The Odyssey* and *MacGuyver;* the telefilms *Murder at the Door, Abduction of Innocence, Other Women's Children,* and *My Name is Kate;* and the theatrical features *Impolite* and *Abducted.*

"Perhaps the biggest change in the show this year was that we didn't have Frank Black's yellow house as the bright golden center from which he could descend into darkness," says McLachlan, in reference to the show's central character, a serial-killer-hunting criminalist played by Lance Henriksen. "In the first two seasons, Frank's home life gave us a contrast [in visual style] to work with, and it was a useful device to have him go somewhere other than grim crime scenes. When we shot the bright warm center of his life, I used more fill and warmer lights, and there were no dark shadows or anything else lurking in the corners. The police station served as an intermediate point from which he would go to the places where all of this evil was happening. Once he got to those places, there was no limit to how dark or grim we'd make things. But this season, the only starting point we had was the set they built for the FBI headquarters. That became the new starting point from which Frank goes off on his various pursuits."

The nominated episode, "Skull and Bones," trails Black as he searches for answers after a mass grave is discovered. McLachlan muses, "What really worked for this episode was that it had a very tight script that was about the search for truth — whether or not the truth mattered, and whether the ends justified the means. It was a situation where everything came together. When the script is good, everybody gets inspired. The actors are going to do better work because they really like the lines. The production designer is going to build better sets and will be more careful in choosing locations. A good script will almost tell you how it has to be shot. Additionally, we had a fresh director, Paul Shapiro, who had never done an episode for the show, but who has a terrific eye. I had worked with Paul years ago on *The Commish,* and that was probably the best-looking *Commish* episode I shot.

"Conversely," he expands, "if you're not working with a producer and a director who appreciate good photography, it's almost impossible do good work — at the very least, it makes your job a lot harder. But if you're working with somebody who has a good eye, who can see how a suggestion about a certain shot or scene may help to tell the story better, and who can embrace an idea without a lot of convincing, it makes the project that much better. Paul totally embraced that notion, and was constantly nudging me to take the photography further and make it look better."

A good majority of "Skull and Bones" takes place at a highway construction site where roadworkers dig up scores of human remains. "The story was pretty grisly, grim and emotionally heavy," McLachlan relates, "and that mood would have been completely ruined by sunshine. The road [location] was under construction through heavy woods, so I had the effects department come out with as many foggers as they could get their hands on and put them out in the woods. We often had natural overcast conditions as well as natural fog, but every time the sun came out, we just made our fog thicker — any sense that it was ever sunny was pretty much hidden.

"For nighttime scenes at that site, we played all of our sources very hard. We created a nice visual using these [table-like] frames covered with sheets of plastic on which [the investigators] are sorting the bones. Rather than playing our light off of the [practical] work lights, we put them underneath the plastic so they were shining up through the bones and lighting the actors' faces.

"Additionally, on this episode, I used the Arri Varicon system for the first time. We had a lot of big nighttime expanses where I put a very light blue gel into the Varicon and used it to dial up a little bit of cool light into the shadow areas. On such a huge night exterior, where we might have had expanses of black sky that normally wouldn't get any exposure whatsoever, we'd put a base amount of fog on it, which made our [true] blacks that much more rich."

The remaining sequences for the episode were executed on stages at North Shore Studios in Vancouver. "There's a big scene where the investigators are sure that the clues they're looking for are in this room," McLachlan notes, "but they're not finding them and they're kind of stumped. Paul wanted to do a 360-degree pan that took the audience through the whole room, looking at all of these dejected investigators trying to find the answers. We shot the scene on a stage and I could have lit from above, but that would have completely ruined the feel. Instead, I used just a few practicals that we beefed up with some additional little 'puck' lights, which are little flat tungsten fixtures made for shelf and countertop lighting. *[Ed. note: These small units are available from IKEA furniture stores.]* They're so small that you can just Velcro them to the side of a computer or a lamp shade, and it will feel as if the light's coming from the practical. If you have a desk lamp on a table and a character is standing a few feet away, you can use a puck to help carry the light."

Joel Ransom

The X-Files, "Travelers"

"Walking onto a show like *The X-Files* was pretty tough," recounts Canadian cinematographer Joel Ransom. "I had started on the show's fourth year as the main-unit camera operator, took over the photography

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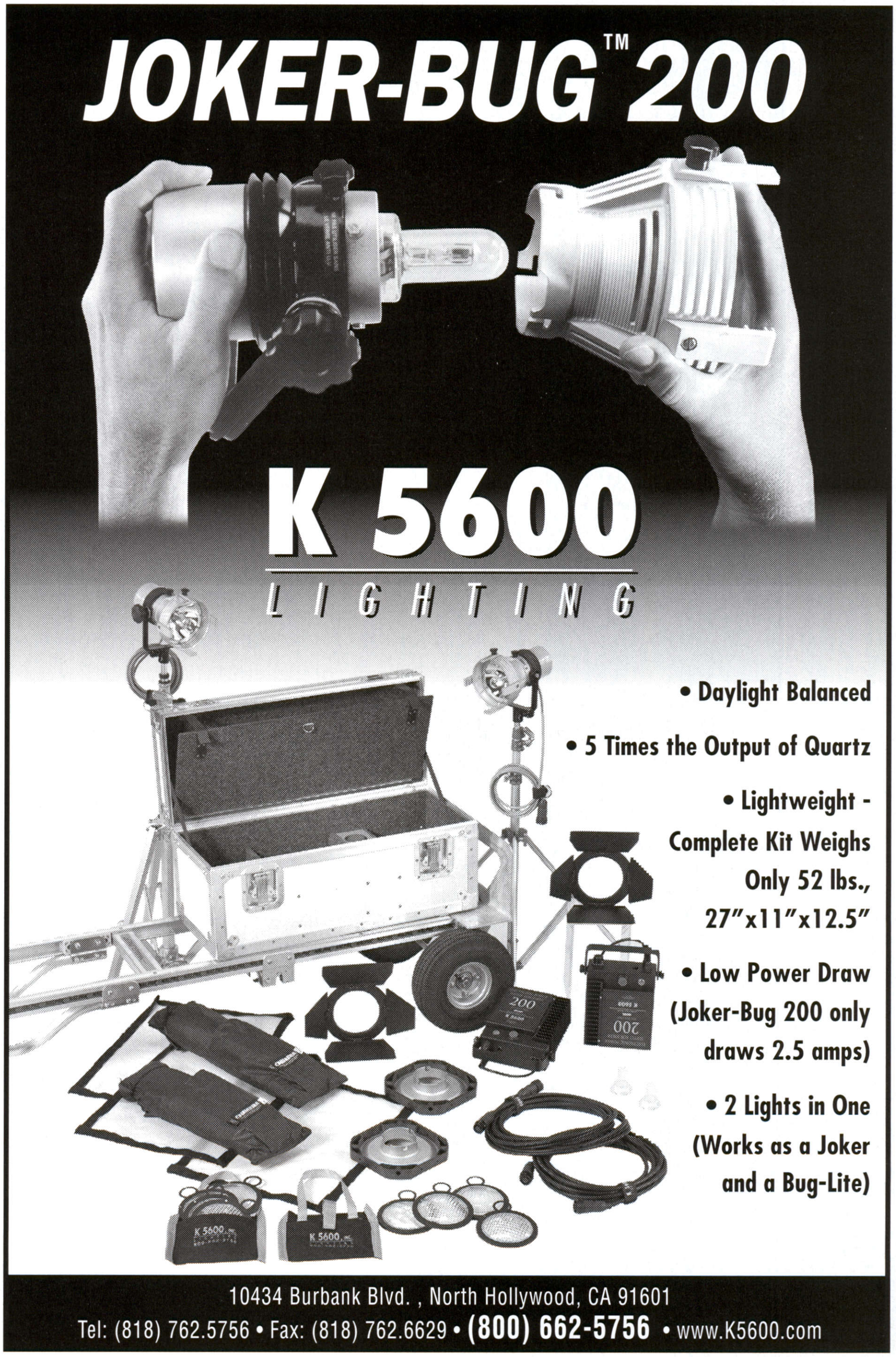

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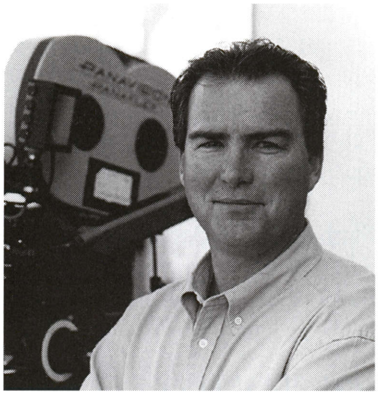
halfway through the season, and then shot the fifth season. For me, it was a bit of a trial by fire. I've been in this business for about 18 years, working as an assistant and operator with other cameramen and watching how they light. But there's huge difference between watching someone do that work and figuring it out for yourself. It was a huge break from me to be thrown into that situation [on *The X-Files*] and to follow what John Bartley [ASC, CSC] had done. For a while, I tried different things — more backlight, less backlight, lower stops, higher stops — without straying too far from the established look of the show."

However, due to the evolution of the series after its first few seasons, Ransom was soon able to capitalize on the learning-curve gains that *The X-Files*' cast and crew had already made. Working on the fourth season with Bartley's gaffer, David Tickell, eased some of the pressure-cooker anxieties of taking over one of the hottest shows on television. "I had never really followed the show as a viewer, because it used to air on Friday nights and I was always working," Ransom admits, "Having David around was a great help. After I shot those first few episodes, the fifth season was a lot more comfortable for me."

Ransom earned an Emmy Award nomination last year for the *X-Files* episode "The Post-Modern Prometheus" (see *AC* Oct. '98), and shot the series until the production relocated from Vancouver to Los Angeles, where fellow ASC Award nominee Bill Roe took over the photographic duties. Since then, Ransom has shot the network sci-fi series *Mercy Point*, as well as the features *G-Savior* and *Confessions of a Trick Baby*.

Ransom's nominated work, "Travelers," traces the origin of the FBI's mysterious "X-Files" investigations back to 1952. "When I read the script," recalls Ransom, "my first idea was to shoot the episode in black-and-white. But we had already done that on 'Prometheus,' so I thought, 'Since we're supposed to be in 1952, what sort of [lighting] equipment did they have back then?' Based on that idea, we decided to light exclusively with tungstens, as opposed to our usual mix of HMIs and fluorescents. I then added a light [Tiffen] ProMist filter to give everything a softer feel and a different quality from a regular episode. When the art and costume departments brought in the period costumes and set dressings, and put the old cars on the streets, it really added to the effect I was looking for, which turned out very well.

"The great thing about *The X-Files* is that you're expected to go the extra mile to make the images better, and they give you the extra time to make them better. I paid a lot of attention to lighting the actors, especially because of the popularity of the show and my desire to make [actress] Gillian Anderson look good. We would often block out the scenes on each set and figure out how to light things in a way that would make her look good. The tough thing about the photography on the show was the question of whether to go for realism and just light the room, or to cheat the light for the benefit of the lead actors. My feeling was that since [Anderson and David Duchovny] had become quite big stars, the show's photography was even more critical because it would constantly be compared to still photos taken for magazine covers — which of course can be airbrushed and perfectly staged as portraits. While shooting *The X-Files,* we'd have to somehow make the actors look good throughout a 360-degree master shot that moves into a single!"



Bill Roe *

The X-Files, "Drive"

Director of photography Bill Roe began his career as a loader for Owen Roizman, ASC on the 1978 film *Sgt. Pepper's Lonely Heart's Club Band.* He then worked as an assistant to such notable cameramen as Michael Chapman, ASC (on *The Lost Boys*) and Victor Kemper, ASC (*Secret Admirer, Pee Wee's Big Adventure*), before moving up to operate on such films as *Kindergarten Cop, Die Hard 2, Dave, The Indian in the Cupboard, Space Jam* and *Primal Fear.*

During his time as an operator, Roe was also able to reunite with Roizman on *Wyatt Earp.* "Owen was always very encouraging," Roe says about his earliest mentor. "While we were working on *Wyatt Earp,* he would have me take his meter readings and ask me which stop I thought the scene should be exposed at. Owen would then sit down with me and explain exactly what he was doing, and why, in his photography. I sat next to him in dailies every day for seven months! When I first started shooting, I still thought, 'I don't know if I can do this!' But after working with some of the best cinematographers around, I realized that I had absorbed quite a lot from them. Even if I wasn't consciously studying their work, those experiences prepared me to become a cinematographer myself."

It was Roe's collaboration with another notable cinematographer, Michael Watkins, ASC — for whom he had operated on *Hearts and Souls* — that led to Roe's first stint as a director of photography, on the telefilm *Detention: Siege at Johnson High.* That same year, Watkins assumed the role of executive producer on the series *Brooklyn South,* and he hired Roe to photograph the police drama (see *AC* July '98). Later, after Watkins accepted a co-executive producer assignment on *The X-Files,* the series was relocated to Los Angeles from Vancouver, and Watkins again brought Roe with him. This opportunity gave Roe the chance exhibit his talents once again, and he earned his first ASC Award in the process.

Roe notes, "Initially, we talked about the look of the show — what we wanted to re-create here in L.A., and what we didn't want to re-create from the look of the Vancouver-based episodes. [Longtime series producer and frequent director] Rob Bowman was able to talk with me specifically about the look and feel of the show. Rob is a very visual person, and has been one of the primary driving forces of the visuals in the series. Fortunately, 'Drive' was the second episode of the season, so working with him [as the director] was a great help." (Not incidentally, Bowman also helmed the *X-Files* feature film; see *AC* July '98.)

Roe shoots *The X-Files* in Super 35 (for future compatibility with hi-def and 16 x 9 presentation) and utilizes Panavision cameras and lenses. His nominated episode, "Drive," was shot entirely on Kodak EXR 5298, and offered the cinematographer a veritable potpourri of

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shooting situations.

The show's grisly premise is that covert U.S. military testing has adversely affected an unfortunate married couple, causing the wife's head to explode from internal pressure. The husband will soon suffer a similar fate. However, it's found that traveling at high speed in a westward direction will temporarily negate this bizarre affliction, so FBI Agent Fox Mulder (David Duchovny) and the man embark upon a frantic one-way road trip that begins in the Arizona desert. Fellow agent Dana Scully (Gillian Anderson) must find a cure for the deadly malady before the interstate highway ends at the Pacific Ocean.

Shot in the high desert near Palmdale, California, and on stages at 20th Century Fox in Culver City, the episode's action is evenly split between two distinct settings: Mulder traveling with the human time bomb in a car, and Scully trying to diagnose the man's ailment in the lab. "The nice aspect of *The X-Files* is that don't do the same thing each week," says Roe. "We're not doing a hospital or a police precinct every day, which made it hard to pick one episode to submit [for the ASC Awards]. 'Drive' has a lot of different looks in it. The driving shots were very interesting to do, and we didn't use any supplemental lighting for them. We just used available light and then brought in negative fill.

"As we rigged the car," he details, "it occurred to me that if we just blacked out the rear and backside windows, it would be the same as adding light from the front. Also, going with the available daylight made the driving shots look very natural. We had three cameras running — two mounted on the car rig and one operated from inside, covering the scene while we were driving."

In addition to these exterior sequences, "Drive" also features some lavish *X-Files*-style interiors. "We did some very interesting work in the FBI sets and the labs as well," notes Roe. "Even on the sets that we frequently come back to, we used soft light, hard light, or different gels to change the look as much as possible."

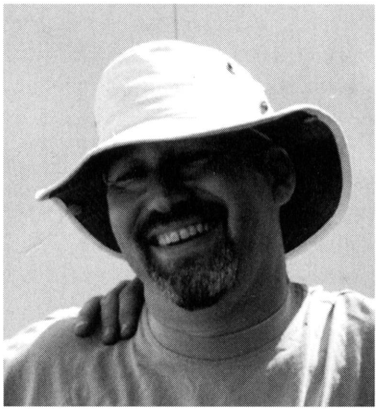
The cameraman recently finished his first season of *The X-Files* and is looking forward to shooting the popular series' seventh year.

MINI-SERIES/MOW/PILOT

Thomas Burstyn, CSC

When Trumpets Fade

Prior to World War II's infamous "Battle of the Bulge" in the winter of 1944, the American army spent three gruesome days engaged in a disastrous offensive against German forces while trying to claim the Hurtigen Forest in Belgium. "It was a really grim moment in history," attests director of photography Thomas Burstyn, CSC, who photographed the telefilm *When Trumpets Fade,* which chronicles the incident. "This film tells the story of Private David Manning [Ron Eldard], who survives part of the battle. He's promoted to sergeant, given a squad of green guys and told to go back and fight. These troops have just come over from the States — they have no idea what they're getting involved in, and Manning doesn't want to go. So the story is about the question of whether his subsequent action is cowardice or common sense; where does bravery give way to common sense?"



Burstyn's third collaboration with director John Irvin (after *Crazy Horse* and *City of Industry*), *When Trumpets Fade* was photographed entirely in Hungary, around Budapest and Lake Balentine, utilizing local crews and a large number of film students. "In talking about the look of the film, John and I picked the famous war journalist Robert Capa as our touchstone for the film," the cinematographer reveals. "Obviously, Capa didn't light anything, so the soldiers in their helmets had dark sockets under their eyes and a really grim kind of a look. We couldn't shoot in black-and-white because of a distribution requirement, so instead we decided to try to suck a lot of the color out of the image by making a bleach-bypass print.

"There's a really good lab in Budapest, and we had a technician who took very good care of us. She did a bunch of different bypass mixtures [to test the process]. When we came back to the States, however, we wound up using Deluxe's ACE [silver-retention] process, which worked nicely." (For details on ACE, see "Soup du Jour," *AC* Nov. '98.)

After studying Capa's work, the filmmakers adopted a strict edict for their shoot. Burstyn explains, "We decided that for the battle scenes, in spite of the fact that we had a whole bunch of extras, explosions and special effects, we wouldn't use a crane. We decided to not make the camera do anything that an infantryman couldn't do. That's how we honored Capa's style. Instead of a crane, we frequently shot with a low-angle prism; the camera was always on the ground, really close to the mud. That's perhaps the most obvious signature style of the film.

"Additionally, we didn't use wide-angle or extreme telephoto lenses. We occasionally used a tele-

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An Evening of Honors

In celebration of cinematography's finest achievements of 1998, the 13th Annual ASC Outstanding Achievement Awards took place on February 21 at the Century Plaza Hotel in Los Angeles. Here is a photographic account of that auspicious evening, as well as coverage of the Nominee's Dinner and Open House that took place in the preceding days at the ASC Clubhouse in Hollywood.

Contributing photographers:
Jeff Granberry, Tory Kooyman, Chris Pizzello
and Christopher Probst.

Preceding page: (1) Laszlo Kovacs, ASC presents Vilmos Zsigmond, ASC with the Lifetime Achievement Award. This page, at the Nominees Dinner on February 19: (2) Zsigmond and International Award winner Giuseppe Rotunno, ASC, AIC; (3) Sol Negrin, ASC and Society president Victor Kemper, ASC; (4) Eastman Kodak representatives Dick Aschman and Judy Doherty pose with Awards Committee Chairman Bud Stone; (5) John Toll, ASC and Steve Chagollan of *Variety;* (6) ASC Education Committee co-chair Dean Cundey, ASC is flanked by Karl Struss Heritage Award winners Lisa Wiegand and Jonah Torreano; (7) Hugo Cortina is presented with a plaque to commemorate his ASC Award nomination; (8) Robert McLachlan, CSC; (9) James Carter; (10) Thomas Burstyn, CSC; (11) Ron Garcia, ASC; (12) Shane Hurlbut; (13) Joel Ransom; (14) Michael Goi.

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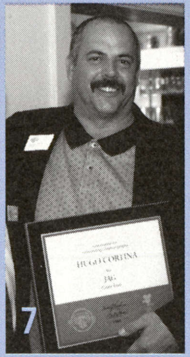
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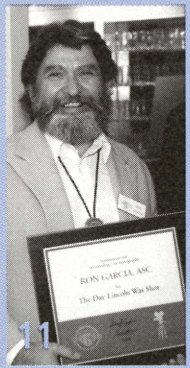
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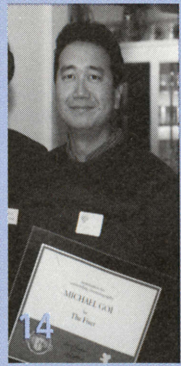
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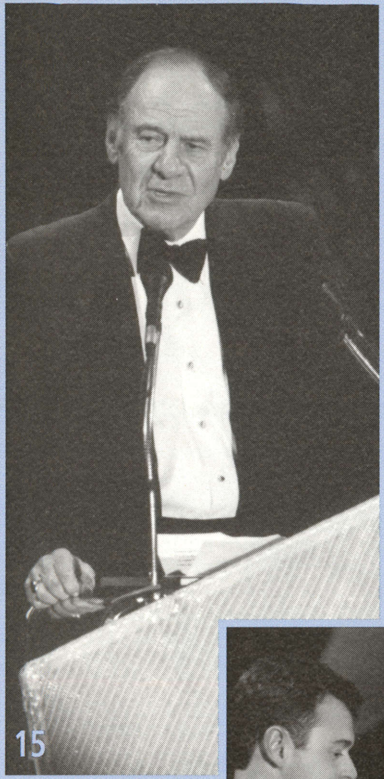
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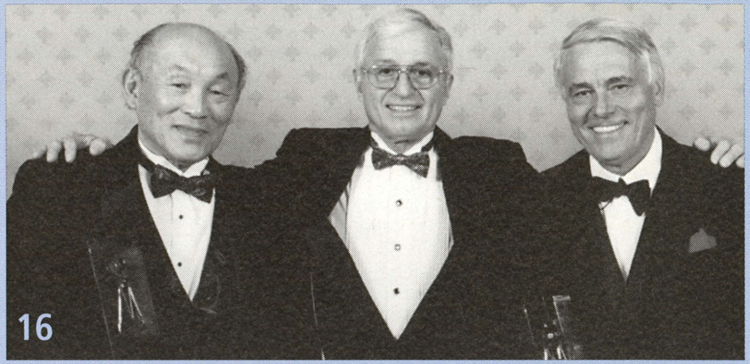
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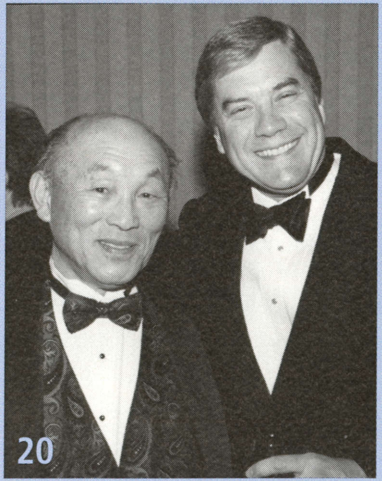
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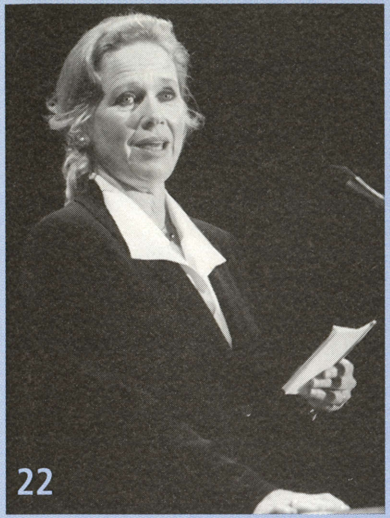
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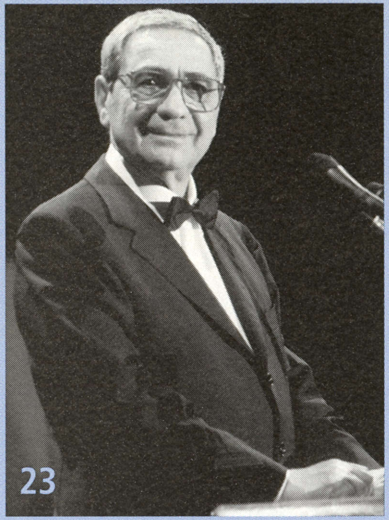
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At the Awards ceremony: (15) Bud Stone makes his opening remarks, welcoming the audience of 1,500; (16) Presidents Award honorees Tak Miyagashima and Al Mayer, Sr. of Panavision flank Victor Kemper; (17) ASC Awards co-founders Michael Margulies, ASC and Woody Omens, ASC enjoy the company of their respective wives, Marilyn and Florence; (18) Conrad Hall, ASC (who won the Society's first Student Film Award in 1950) presents plaques to Karl Struss Heritage Award winners Jonah Torreano and Lisa Weigand; (19) an Oscar nominee this year for Best Supporting Actress for *Gods and Monsters*, Lynn Redgrave presented the ASC Award for the Feature Film category; (20) Tak Miyagashima and Dick Aschman in formal finery; (21) nominee Robert McLachlan and his wife, Pat Crowe; (22) actress Liv Ullmann made a heartfelt speech before presenting the International Award to (23) Giuseppe Rotunno, who accepted with humility and grace; (24) current *American Cinematographer* editors David Williams and Stephen Pizzello flank former *AC* chief Herb Lightman; (25) Howard Anderson III, ASC, John and Debra Sullivan, Valerie Anderson and Howard A. Anderson, Jr., ASC; (26) Eastman Kodak representative Don Henderson and his wife, Kittie, pose with Peter Pilafian, former ASC president William Fraker and Norlynne Coar; (27) Curtis Clark, ASC and Society associate member Garrett Smith are joined by friends of the ASC.

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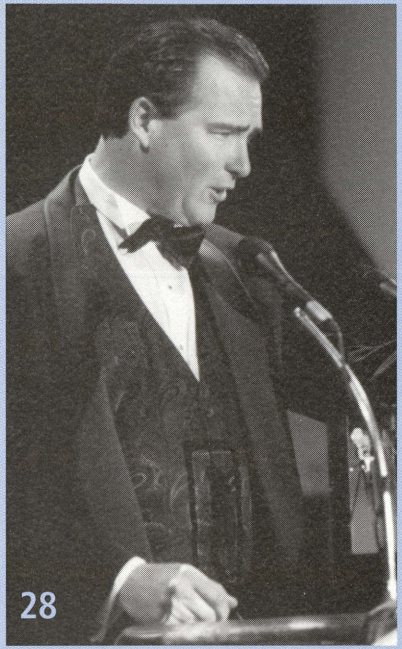
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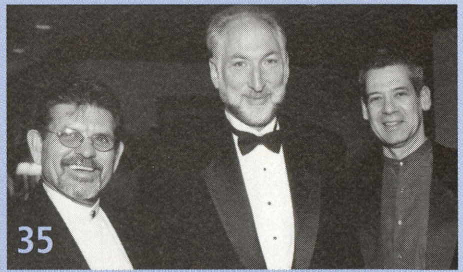
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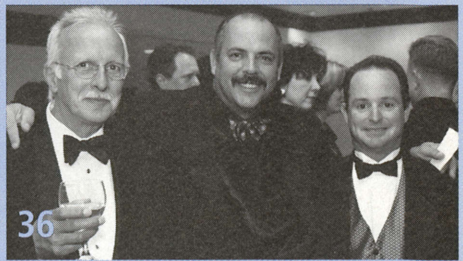
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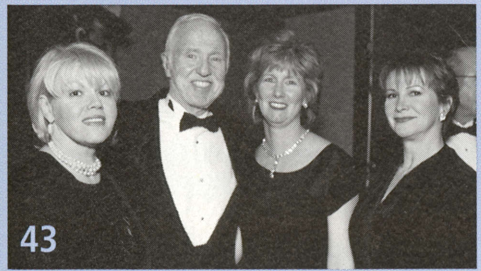
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The evening continues: (28) Bill Roe accepts the ASC Award for his work on *The X-Files;* (29) John Toll, ASC wins for his work on *The Thin Red Line;* (30) presenters Mark Rydell and Liv Ullmann with Board of Governors Award recipient Robert Altman; (31) Conrad Hall, Vilmos Zsigmond and Giuseppe Rotunno toast the Awards; (32) *AC* publisher Jim McCullaugh and Robert Primes, ASC are joined by their respective wives, Nina and Theo; (33) Awards Committee Co-Chairman Owen Roizman, ASC snaps a shot of Steven Poster, ASC; (34) Martha Coolidge presented the award for MOW/Miniseries/Pilot to Lisa Rich, accepting for her husband, Robbie Greenberg, ASC; (35) cameraman Stephen Lighthill is flanked by fellow attendees; (36) at center, nominee Hugo Cortina is supported by well-wishers; (37) photographer Douglas Kirkland and wife, Françoise; (38) from right, Kodak representative Curtis Jones and his wife, Cynthia, are joined by Panavision's Iain Neil; (39) Michael Negrin and Flechel Morin; (40) nominee Michael Goi and Sage Kirkpatrick; (41) Society associate Nazir Zaidi, Patty Larson, James Liles, ASC and Society associate Jim Branch; (42) Gil Hubbs, ASC, Sharon Robinson, Ann Hubbs and Wayne Kennan, ASC; (43) Louise Campbell, Haskell Wexler, ASC, Ellen Shire and Rita Taggart-Wexler; (44) International President of I.A.T.S.E. Tom Short (third from left), with ASC fellows George Spiro Dibie, Vilmos Zsigmond, Haskell Wexler, John Toll and Laszlo Kovacs.

From the Open House held on February 20: (45) The ASC's Hollywood Clubhouse, (46) visitors took the opportunity to talk with ASC members and their guests, including Laszlo Kovacs; (47) Vilmos Zsigmond logs on to answer questions during a live Internet chat session sponsored by Eastman Kodak; (48) Tak Miyagashima and Willy Kurant, ASC; (49) Zsigmond holds court; (50) Thomas Burstyn takes a turn at the Internet chat terminal; (51) Ron Garcia makes a point to an interested group; (52) Giuseppe Rotunno logs on as Victor Kemper and Bill Roe observe; (53)Kodak representative Diane Willard coaches Robert McLachlan as he takes a turn; (54) visitors peruse the latest issue of *AC;* (55) at center, John Toll prepares to tackle the Internet, aided by ASC Website Coordinator Jon Stout (far left) and longtime *AC* correspondent Bob Fisher (far right).

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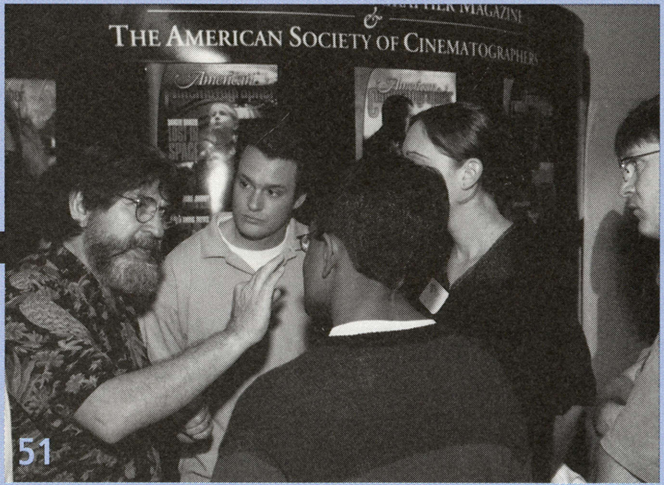
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VILMOS ZSIGMOND, ASC

You can now own this magnificent 146-page, hardbound coffeetable book about the life and work of one of the great cinematographers of all time, Vilmos Zsigmond, ASC. Published in 1997 in conjunction with the Polish CAMERIMAGE International Film Festival of the Art of Cinematography (where Zsigmond received the prestigious Golden Frog Lifetime Achievement Award), this book features material and photographs never before made available — including many behind-the-scenes shots of Zsigmond working on such films as *McCabe and Mrs. Miller, Red Sky at Morning, Deliverance, Scarecrow, The Sugarland Express, Cinderella Liberty, Close Encounters of the Third Kind, The Deer Hunter, The Rose, The Border, Blow Out, The River, The Witches of Eastwick, Fat Man and Little Boy, The Two Jakes, The Bonfire of the Vanities, Intersection, Maverick, The Ghost and the Darkness*, and others. The book also offers extensive autobiographical information written by Zsigmond, as well as biographical material penned by veteran journalist Bob Fisher — making it a must for any serious film professional, film student or film buff, as well as a perfect gift for the cineaste in your life.

LASZLO KOVACS, ASC

This handsome 178-page volume was published in 1998, also in conjunction with the CAMERIMAGE International Film Festival of the Art of Cinematography, where Laszlo Kovacs, ASC received the Golden Frog Lifetime Achievement Award. It features many candid shots of Kovacs on the set of such films as *Targets, Easy Rider, Savage Seven, Psych-Out, Alex In Wonderland, The Last Movie/Chinchero, What's Up, Doc?, Paper Moon, Freebie and the Bean, Shampoo, At Long Last Love, Harry and Walter Go to New York, Nickelodeon, New York, New York, Butch and Sundance: The Early Days, The Runner Stumbles, F.I.S.T., Inside Moves, The Legend of the Lone Ranger, Frances, Ghostbusters, Free Willy 2, Legal Eagles, Copycat, My Best Friend's Wedding, Jack Frost* and others. The book also presents extensive biographical information about Kovacs and his creative vision, as told to Peter Tomarken, as well as biographical material written by Bob Fisher.

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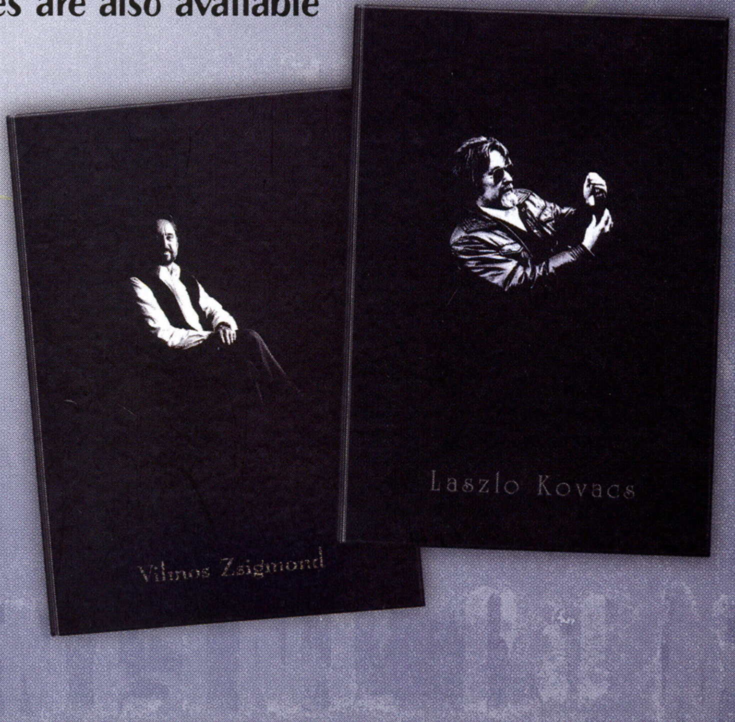


photo, but very rarely. We basically kept everything in that sort of 'normal' range from 25mm to around 100mm.

"All of the battle sequences in the film were very difficult. Instead of choreographing specific stunts and moments, John would choreograph the entire battle. He'd figure out what the logistics of the battle would be, and then, working not unlike war photographers, we'd place the cameras in the spots where action was likely to take place. The look became much more journalistic that way. You'd be in the right place, but you would still have to find something that was happening. We'd plunk all seven cameras down, film the battle, and then reset everybody and go back to our first position. If everyone got their shot, we'd place the cameras in seven more places and then stage the battle again, before moving on to the next stage in the action."

Burstyn shot *When Trumpets Fade* entirely on Kodak EXR 5298 stock, eschewing the usual 85 filter to lend a cold feel to the exteriors. "Not using correction was also partially a pragmatic decision," the cameraman adds. "Because it was so wet and humid, fooling around with filters when we had seven cameras would have been too complicated. Also, a lot of the crew members were film students who were very eager and full of energy, but not very experienced. Besides, it was very dark in the forest. Even without a filter, I rate 98 at 400 ASA, and I don't think we ever got more than a T5.6. Within the forest, I was shooting at T2/2.8 a lot of the time.

"We only had three sunny days during our entire shooting schedule," says Burstyn. "We burned tires for smoke every day, so the whole film is covered in these veils of smoke that keep drifting through. We were also lucky that we had several extremely foggy days. The fog was really spectacular — you could never reproduce that beautiful effect with any amount of money. We were in the forest and the soldiers were just sort of drifting in and out of the fog.

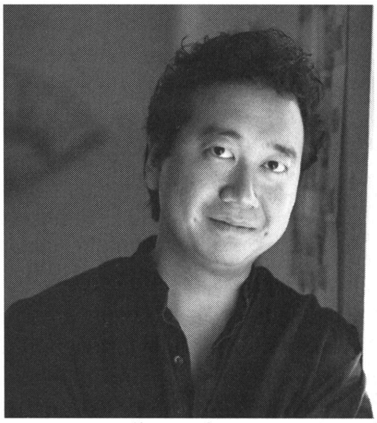
"I didn't need any negative fill because the forest floor was pretty black, and most of the film takes place in the forest. The light in there comes straight down, which gave the actors gaunt features and dark eye sockets, but I wanted to feel the eyes there once in a while, so sometimes we'd bang the light in right over the camera for a little pinprick in the eyes, using silver bounce, white card or a 1.2K HMI Par with a Chimera."

In addition to his ASC nomination, Burstyn has won a 1995 Academy of Canadian Cinema and Television's "Genie" Award for the film *Magic in the Water*. He has also received Genie nominations for *The Lotus Eaters* and *Tadpole and the Whale*, as well as a CSC Award nomination for *Andre*. Additionally, his work on the series *The Hitchhiker* earned him three Cable ACE Awards and a CSC Award. Burstyn's other feature credits include *Arctic Blue* and *Toy Soldiers*, while his extensive work in television also includes *Peter Benchley's Creature, The Girl Next Door, Seduced By Madness, Criminal Behavior* and *She Stood Alone*. He recently finished the feature *Where the Money Is*, which stars Paul Newman.

Michael Goi

The Fixer

Fortunately for cinematographer and Chicago native Michael Goi, two of his key collaborators on the Showtime Originals production *The Fixer* were lifelong friends from his hometown; both director Charles Carner and editor Marc Leif attended Columbia College with Goi. When the cameraman graduated in the early 1980s, he began teaching cinematography and lighting techniques at the college, while also shooting low-budget films such



as *Moonstalker, Chains, Sam and Sarah* and *Hellmaster*. Since then, Goi has shot the films *Hundred Percent, A Passion for Murder, Evil Obsession, Vampire Conspiracy* and *How U Like Me Now*, and earned an Emmy for the documentary *Fired Up: The Story of Public Housing in Chicago*.

"*The Fixer* was set in Chicago, although we had to shoot it in Toronto," Goi reveals. "However, Charles, Marc and I really knew the environment of Chicago and what makes the town tick, so we could bring all of those experiences to bear on the film. To me, the most gratifying experience is when I work with people who really understand the emotional impact of what I'm trying to achieve in my cinematography.

"[Our lead actor,] Jon Voight, was very supportive and recognized that when you're going for something strong photographically, it's also going to make his performance stronger. He was very giving in that respect. In fact, toward the end of the film, we wanted a very cold, stormy atmosphere, because the story doesn't have a very happy ending. But when we got the location, which was by a lake, it was freezing cold with 100 mph winds and crashing waves. It was absolutely the most miserable [situation] you could imagine, but Charles and I thought it was perfect for the movie's downbeat ending. The crew was expecting that we'd pack up and go home, but then Jon pulled up in his car and said, 'This is

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great! This is perfect for the end of the movie!' Again, when you have people working toward the same goal, it makes the whole experience of making the movie that much richer."

Goi, Carner and Leif referenced their collective libraries of thousands of movies on laserdisc to construct a visual vocabulary of even the most obscure scenes from other films. "I think there was some influence from Gordon Willis [ASC]'s work from the early Seventies, such as *Godfather II* and *Klute*," says Goi. "However, what also works for me lightingwise is remembering moments from my past, and the feel of the environment that I'm in.

"In *The Fixer*, there is a scene between Jon Voight and Brent Jennings, who plays a priest, in the latter character's room. They talk well into twilight. With that scene in mind, I remembered the look of my parent's living room when I was a child, early on a Christmas morning before the sun rose. Everything was muted and grayish-blue, and the room had a very clear, cold smell to it. My feeling about that room was perfect for that segment of the scene, so I set about lighting it in that manner; it wasn't something I talked about with the director or anybody else. During the rushes, Marc Leif commented that the look of the room reminded him of the sound of steam radiators kicking on during winter mornings in Chicago. While doing the sound mix on that scene, Charles Carner said that it had 'Chicago light.'

"I think I always understood that certain things about light which affect me emotionally will also affect other people, but I never realized it in such concrete terms until then. Others will bring different sensibilities and experiences to it, but if you take a chance and light something in a way that's not conventional, but that comes from your heart and soul, they'll respond to it and bring their own experiences to it."

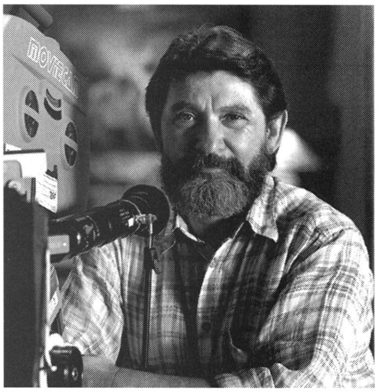
From his earliest childhood memories, Goi recalls a fascination with films and the beginnings of his love for lighting. "When I was eight years old," he recounts, "I saw *The Graduate* for the first time. And even though I probably didn't understand the movie, I went and saw it every week. It would play at 2 a.m. at the Playboy Theater downtown, and I'd bug my parents to take me to see it again. Finally, by the time I was 10, they'd say, 'Just go yourself!' It took me a couple of years to realize that a lot of what I was reacting to was the work of Robert Surtees [ASC] and the emotion that he brought to the movie with his use of light and shadow. That's what got me hooked on movies.

"Later on, when I was in college, I was trying to decide whether to be a cinematographer or an editor, because I enjoyed doing both things. Then I saw Néstor Almendros [ASC]'s work in *Days of Heaven* and I was completely blown away by how perfectly he was able to integrate a very original style of photography into the story. More than any other film I saw at that time, *Days of Heaven* impacted my decision to be a cinematographer."

Ron Garcia, ASC

The Day Lincoln Was Shot

Ron Garcia, ASC was also nominated for an Emmy Award this past year for his sumptuous work on *The Day Lincoln Was Shot* (see *AC* Oct. '98), which recounts the events leading up to the assassination of Abraham Lincoln. Garcia has received three prior ASC Award nominations: in 1990 for the *Twin Peaks* pilot, in 1993 for *Murder in the Heartland Part 1* (*AC* Oct. '93) — which also earned him an Emmy nomination — and in 1995 for the MOW *Divas* (see *AC* May '96) Additionally, he won a 1991 Cable ACE Award for the film *El Diablo*. Garcia's other credits include the features *Storyville*, *Twin Peaks: Fire Walk with Me* (*AC* Sept. '92) and *Disorganized Crime;* the telefilms *Brave New World*, *Alien Nation: The Udara Legacy*, *If Looks Could Kill* and *L.A. Takedown;* and the series *EZ Streets* and *Crime Story*.



Robbie Greenberg, ASC *

Winchell

"Walter Winchell was a tricky subject as a character," says director of photography Robbie Greenberg, ASC about the titular protagonist of *Winchell*, his ASC Award-winning HBO film about the life of the infamous gossip columnist (played by Stanley Tucci). "He was a scumbag, but he was a charming scumbag, as I suppose all powerful men are. You can look at the way they conduct their business and question their morality, but when you're in their presence, they're captivating. I think that was what attracted [director] Paul Mazursky to the character."

Greenberg notes that *Winchell* was his first outing with Mazursky, stating, "A television project is unlike a feature film, because of the reduced budget. You don't have as much time to prep or sit around and discuss the look of the film. You have to find a benchmark that puts both you and the director in the same place as quickly as possible. For us, that benchmark was *The Godfather II* [shot by Gordon Willis, ASC]. Not that we were presuming that we were going do the equivalent of *Godfather*

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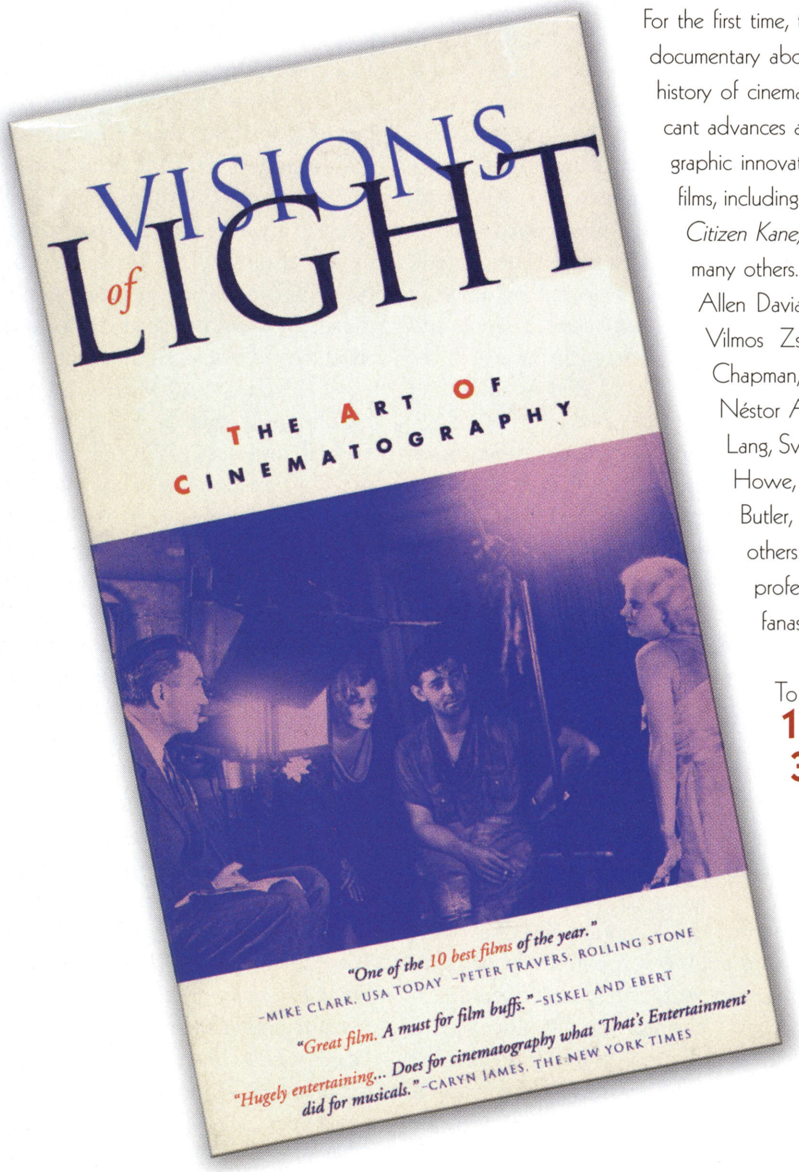
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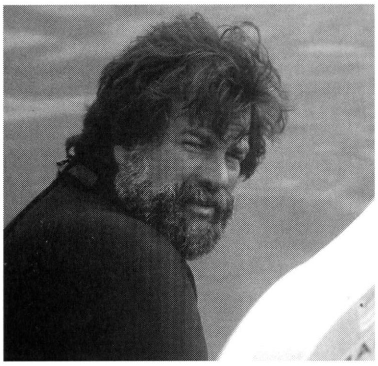

II, but for me, it is one of the most outstanding period films of our time. I thought the use of light in it was great. The different time periods represented were impeccably done — both photographically and in the production design. It's one of the all-time great essays on an Italian-American family, so we jumped on that idea in terms of the darkness in relationship to light, the tonality and color — and especially in our decision to stick to earth colors."

To create scenes spanning several decades of Winchell's life, the production utilized locations in Los Angeles and on the Paramount backlot, and also embarked upon an eight-day shoot in New York City, to sell the setting and eras depicted. "What I can say most about *Winchell*," submits Greenberg, "is that every once in a while, you work on a project that is visited by the film gods. Everything just works. The chemistry between all of the creative participants works both in front of and behind the camera. I really believe *Winchell* was one of those films. The production designer, Marsha Hinds-Johnson, did a great job. Having done big films and knowing what the costs are, I was amazed at what we were able to put in front of the camera. There was something to photograph at every location, so I really share the ASC Award with her."

Greenberg utilized several photographic methods to help suggest the film's various eras. "Winchell clearly had a dark side," he notes, "and we tried to enhance that idea photographically. By using *Godfather II* as a benchmark, I think to some degree a more traditional filmmaking approach was established. Also, Paul is more of a traditional director by nature, so our style had some of the traditional qualities of the period. We didn't use a Louma crane, and there was very little Steadicam, so in that way the camerawork is more representative of a style from the past.

"I also shot some tests to compare Ultraspeed lenses with Primos," Greenberg details. "This included altering the apparent sharpness of the lenses by adjusting the internal elements. In the end, however, I used the Primos with an ⅛ Black ProMist filter." The cameraman also exclusively utilized lenses in the range between 27mm and 40mm. "I'm sort of in love with the 40mm, so I used that as often as I could," he confesses.

For *Winchell*, Greenberg used Eastman Kodak EXR 5248 for daylight exteriors, 5293 for daylight interiors, and Vision 500T for night interiors and exteriors.

Since a substantial portion of the film takes place in Winchell's newsroom office, the production located an abandoned newspaper space seemingly designed for the production's needs. Notes Greenberg, "I didn't do any photographic manipulation or color desaturation to sell the film's period; however, in the design, we were very careful about the locations and the colors chosen. We were extremely fortunate in that we found great location.

"For the daylight office scenes, I augmented the light coming through the windows to some degree with 18Ks or Dinos, depending on the scene. When I used the Dinos, I used tungsten bulbs to play the light warm, and then used a half-corrected HMI bounced off of muslin inside for fill. I generally prefer to bounce off of muslin for fill. If I'm shooting a portrait, for example, and I'm lighting through a window and I want to add some fill, I'll add the muslin fill from the same side as the light coming through the window. It wouldn't just be an indiscriminate bounce to give me an ambiance, it would continue the direction of the light from the same side so that falloff on the shadow side of the face would remain.

"There was a quality of the light in relationship to the dark areas that I was adhering to," he continues. "Most of the light in the film is directionally soft, although there are instances in which there are venetian blind shadows or the light is harder. The lighting was primarily dictated by what I was feeling about a scene, or sometimes by the physical location. The type of units I use are really dictated by who the actor was and what looked best on him or her.

"For our lead actress, Glenne Headley, I'd take a 5K, pull the Fresnel, and aim it through muslin to get a directional soft light for her face — that looked great. I don't know why the sharpness of light without the Fresnel coming through the muslin really worked, but it did. I'd use that as a three-quarter front or a half light, depending on the situation and the drama it created on the face. I used a lot of quasi-three-quarter front light with falloff on the other side of her face, but that varied from scene to scene."

Greenberg's other feature credits include the films *Fools Rush In*, *Under Siege 2*, *Squanto: A Warrior's Tale*, *Sunset Park*, *All I Want for Christmas*, *Free Willy*, *Sweet Dreams* and *The Milagro Beanfield War*, while his television work includes *The Winter of Our Discontent*, *My Mother's Secret Life*, *This Girl for Hire*, *The Lathe of Heaven* and *Second Serve*. The cameraman recently completed the films *Dorothy Dandridge* (directed by Martha Coolidge) and *Snow Day*.

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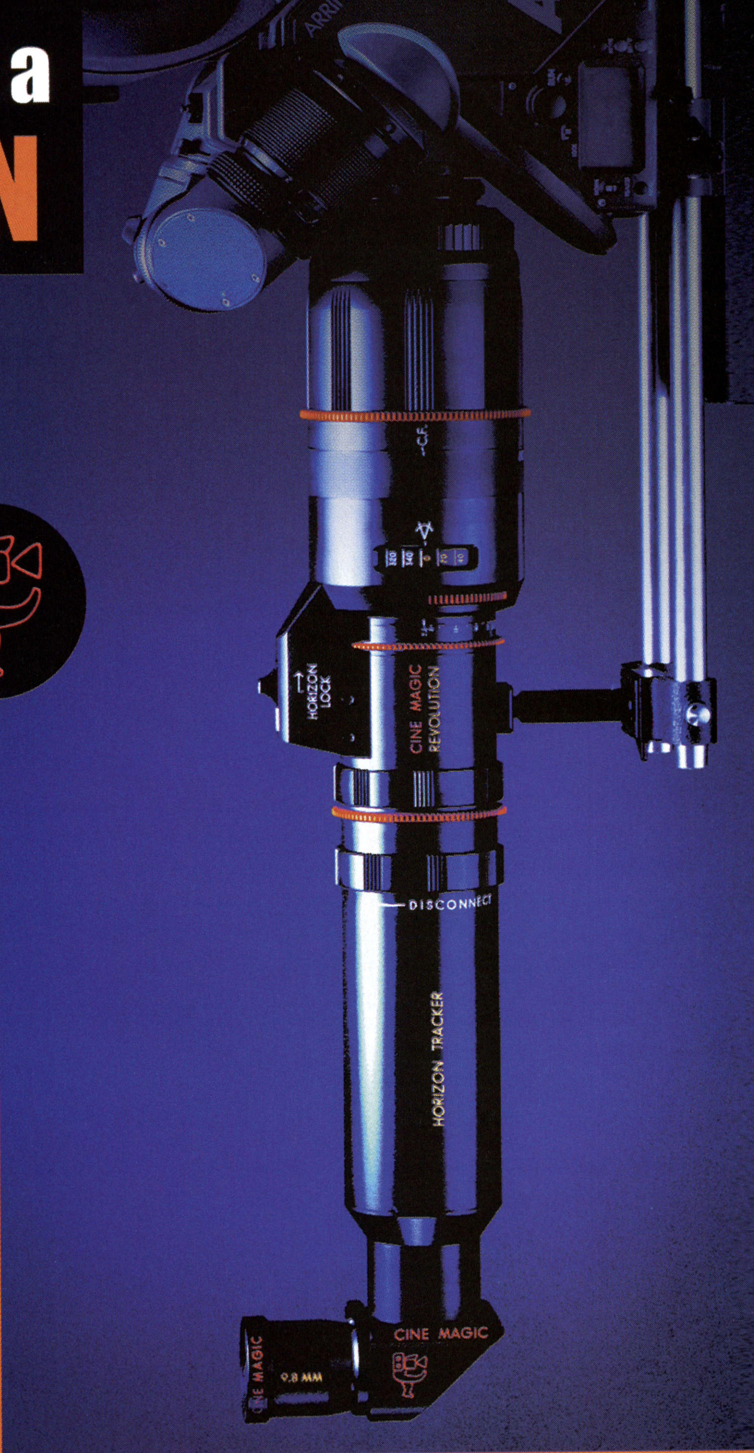
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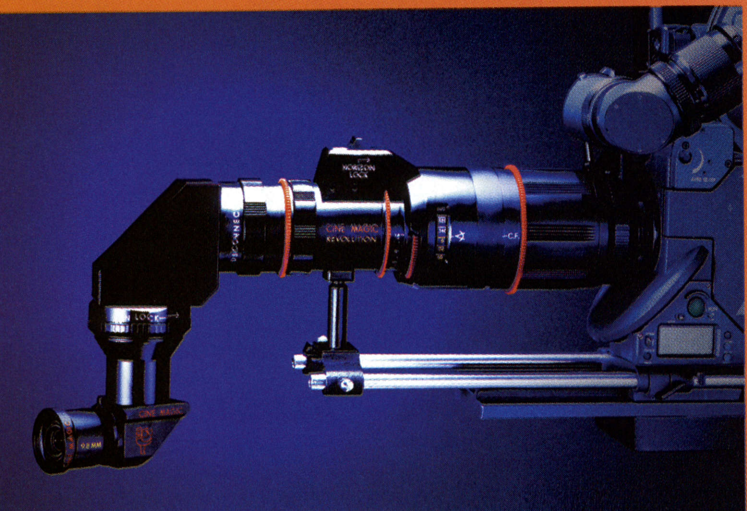
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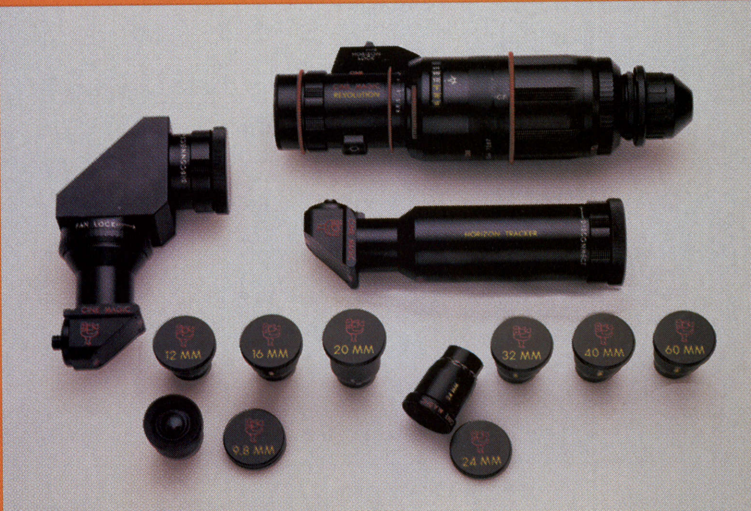
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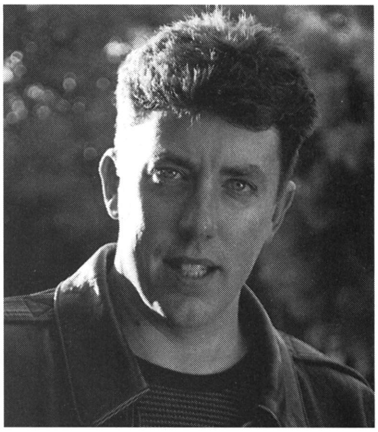
Shane Hurlbut

The Rat Pack

In addition to earning director of photography Shane Hurlbut his first ASC Award nomination, *The Rat Pack* was also his first feature-length film. Hurlbut built his foundation in lighting as both a key grip and a gaffer on music videos and commercials, and he remembers the precise moment when his fascination with light began. "I remember it like it was yesterday," he says. "I was working as a grip on this low-budget horror movie. We were shooting in some crappy office space in Chatsworth [California] that they'd made into a stage, where we were lighting a crematorium set. The third electric suddenly turned to me and said, 'Would you be scared if you walked into this room? Look at it — you can see into every nook and cranny!' That really hit me. From then on, I looked at everything in terms of lighting. Lighting has been my passion ever since."

Hurlbut and that same electrician, Brian Coin (now a prominent commercial director/cinematographer) formed a quick alliance, and went on to work with fellow ASC Award nominee James Carter on three films, with Coin serving as a gaffer and Hurlbut as a key grip. In short order, Hurlbut found himself working as a key grip for such ubiquitous music video veterans as Daniel Pearl, Mark Reshovsky, Bob Gantz and Kevin Kerslake. Hurlbut adds, "When Brian became a commercial director and cinematographer, he asked if I wanted to gaff for him. One day we were shooting local radio ads, and the next we were suddenly doing national 7-Up campaigns!"



Later, while shooting music videos and commercials himself, Hurlbut's experience paid off when his music video tie-in for the feature *Daylight* caught the attention of that picture's director, Rob Cohen. Impressed with the Hurlbut's work, Cohen asked him to shoot the pilot for the series *The Guardian*. The duo quickly forged a solid working rapport, and when Cohen landed the directorial job on HBO's *The Rat Pack*, which recounted the rise and

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fall of Frank Sinatra's ultra-hip nightclubbing clan, he again brought in Hurlbut. "I couldn't have asked for a better person to guide me through the start of my feature film career," says Hurlbut of Cohen. "Rob likes to be in tune with every aspect of production, and because he was a producer before becoming a director, he has such control of everything. It's not that he's *controlling* — he lets you breathe like you wouldn't believe — but he has ultimate control over how he wants a project to look.

"When Rob and I talked about the visual style of *The Rat Pack*, he asked, 'If you're going to say in one word — 'glamour' — in a 1950s or '60s setting, what comes to mind?' I said, 'Hurrell.' And Rob said, 'Right on.' With that in mind, we lit everything like one of George Hurrell's prints. Everything had a high, overexposed key to cream out the skintones, and we always had a lot of backlight, and then just the right amount of fill. No matter where the actors walked or sat, they looked like movie stars.

"During our prep phase, I read tons of books about Hurrell. When we did our lighting tests, we shot several possible key-light scenarios: key, fill, backlight, and so on. I wanted the lighting to be very classic. During that time period, that's what it was all about. I went way over the top with the backlights. My backlights were always searing; I'd usually use Source Four Leikos with a little Hampshire Frost diffusion, and the light they created was about six stops over most of the time.

Careful planning helped Hurlbut and his crew to make the most of their limited shooting schedule. "We had four basic glamour-lighting setups," the cameraman explains. "If the actors were standing, it was setup number one. If they were sitting, it was number two, and so on. I had a schematic drawn up for each setup, which we laminated and slung around every grip's and electrician's neck. That way, when we'd go in for a close-up, I'd call out, 'We're going for number four!' Suddenly, the entire crew was in motion, echoing out 'Number four!' And within minutes, I'd have a beautifully lit close-up. That was how I was able to light and relight for each shot.

"I used amazingly soft lights with a lot of control — mainly Chimera sources with honeycomb egg crates for all of the keys, and occasionally Chimera's China balls. I also relit for every medium shot and every close-up. On a television schedule, you usually find yourself shooting a wide and a medium shot at the same time. But Rob and I agreed that we couldn't shoot glamour with two cameras rolling — like

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one on a 14mm and the other on a 75mm. If you do that and light for the close-up, there's so much soft light flying around the room that the wide shot will be flatter than hell. Or, if you want to have contrast in your wide shot, you're lighting with harder light. With that in mind, we used intense, hard light for all of the wide shots, softer light for the mediums, and then extremely soft light for the close-ups. With the mix of smoke and a rear [Fogal] net, it was just magic.

"There's a lot of camera movement in *The Rat Pack* where we were using one camera on a dance floor and just moving around for close-ups and wide shots, which can be a real nightmare in terms of the lighting. I therefore had every light on dimmers, so that when a character would turn from one light and move to another part of the set, the first light would dim out and another light would come up. Originally, my gaffer tried to talk me into using these computerized dimmer boards, but I told him I wanted solo buttons for each channel — if I had 100 lights burning, I wanted 100 buttons. That way, when I'd get on the dimmer board, it was like I was playing a piano!

"There's one scene in which the camera swoops by Frank Sinatra [Ray Liotta] as he's singing, and this shaft of light suddenly comes up. That moment is absolutely brilliant because it really looks as if he's commanding the spotlight, but it happened totally by chance while I was playing with the lights." ■

The six ASC and Academy Award nominees for feature film cinematography will be profiled in AC's June issue.

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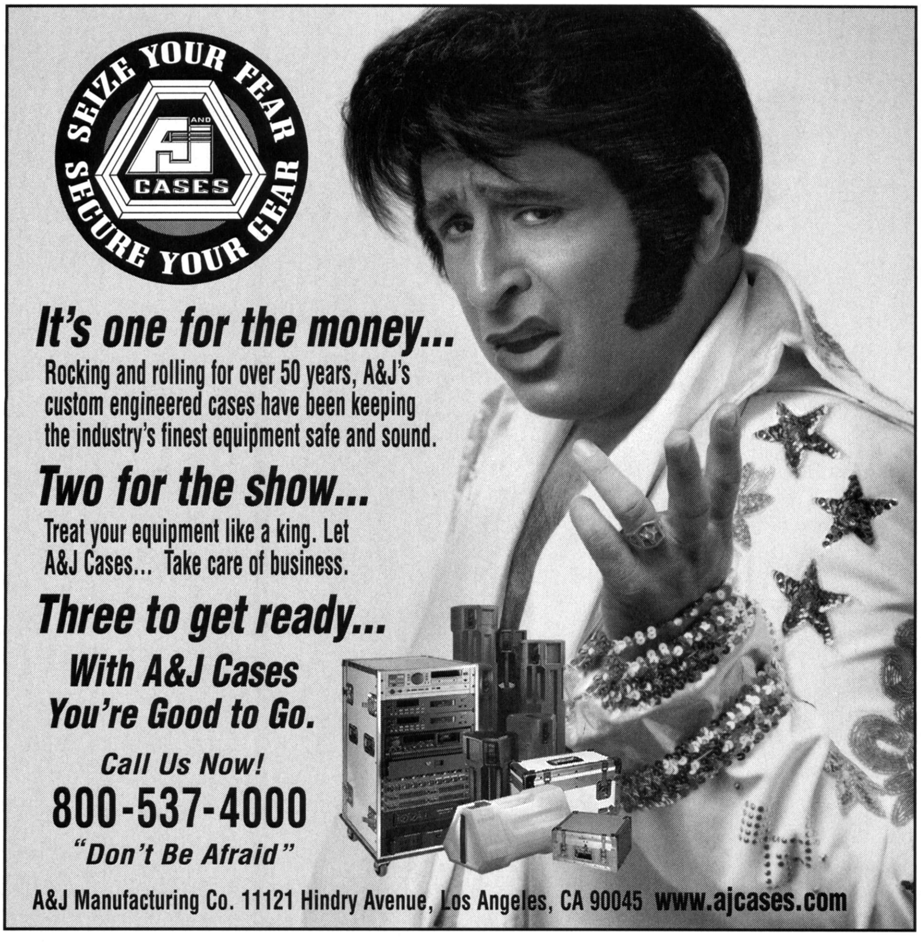

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From Film to Tape

AC takes an in-depth look at some of today's top telecine hardware.

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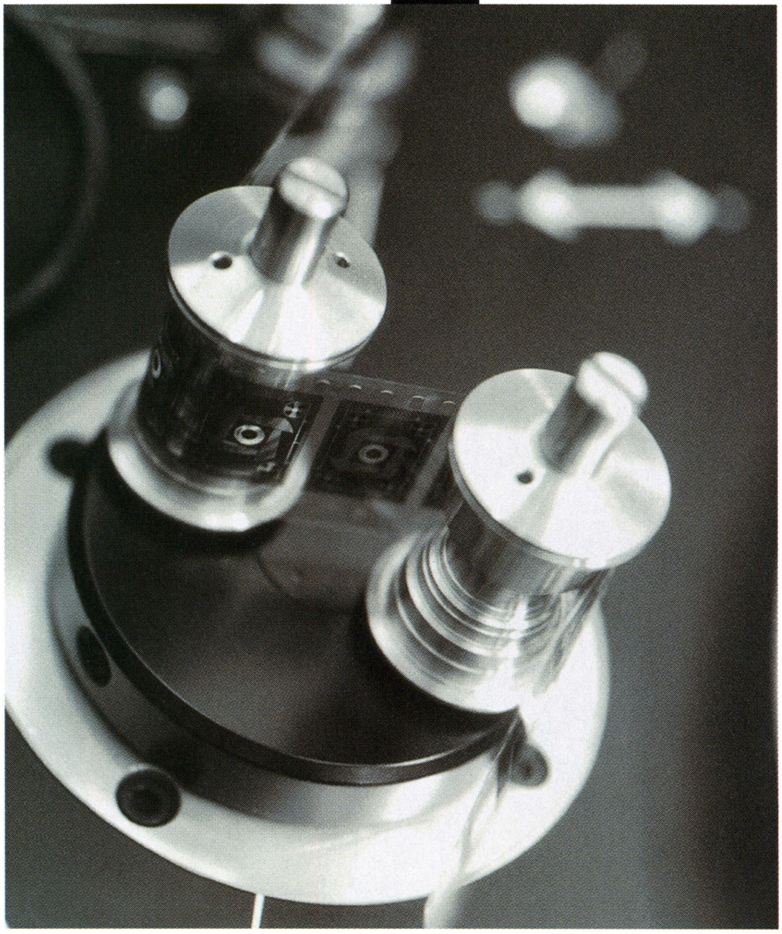


Regardless of a cinematographer's position in the debate over the merits of emulsion versus electronic images, the fact must be accepted that any motion picture project, regardless of the origination medium, enjoys a considerably longer life in the electronic realm. Even the biggest A-list Hollywood features will be seen by more people on video than in theatrical release.

The telecine process has advanced by quantum leaps in recent years. However, as the video palette grows, so do the options. And with the initiation of digital television (DTV) looming, postproduction facilities are dealing with the technical requirements of 18 different formats. However, the production format with the highest latitude and resolution quality is still film. Because of this, utilizing emulsion as an origination medium seems to be the only sure way to guarantee compatibility with the ever-expanding variety of presentation formats. Film also remains the only format that is definitely compatible with what will come in the future.

Evolution of the telecine

Ever since the novelty of live-broadcast television wore off, there has been the need to transfer filmed images to video for broadcast. News productions needed to present 16mm reversal footage — gathered in the field that day — to increasing numbers of evening viewers. And as television assumed a more integral role in our everyday lives, the networks also scrambled to acquire already-produced programming — usually in the form of motion pictures — to fill air time.

The early generations of telecine hardware encumbered with this task literally utilized a film projector pointed into the lens of a video camera. This "film-chain" concept has been greatly evolved by corporations such as Cintel, Phillips and Sony, each of which have produced modern telecine devices that are pushing the envelope of the electronic-image domain.

The telecine didn't truly become a viable postproduction tool until it was given the ability to perform color correction on a video signal. In the initial film-chain transfer machines, a filmed image was projected into a Vidcon color camera, where the signal was then separated by a set of dichroic mirrors and sent to individual red, green and blue sensors. More advanced film-chain devices were then introduced, including a fourth tube that allowed for the additional capture and separation of luminance-signal information. Through the increase — or decrease — of sensitivity in each of these sensors, a rough "color timing" of the filmed image could be achieved. However, considerable effort was still necessary to organize and properly register the three-color outputs into a single image. A further frustration arose from the fact that the Vidcon tubes could produce only a fraction of the contrast range recorded on the film, while these early film-chains caused considerable wear to the film master and often only ran in a single direction. Accomplishing scene-by-scene color correction required the film to be run all the way through, pulled off, rewound and then rethreaded for another pass.

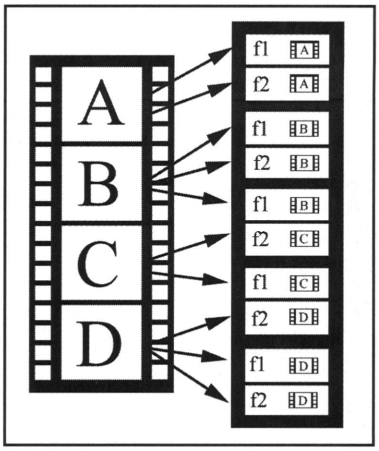
The flying-spot scanner is born

Around the time that film-chain devices began to push ahead by incorporating polarity control — allowing work from both positive and negative images — as well as programmable color correction and optical pan-and-scan systems, the British company Rank Precision Industries (now Cintel Inc.) introduced the flying-spot scanner (FSS). This device incorporated the same photo-electronic principals as the cathode-ray tube (CRT), but in reverse. Additionally, an added benefit of this technology is that the film moves continuously through the telecine, eliminating the sprockets, pull-down claws and shutters that were necessary in an intermittent system such as the film-chain. With the FSS, the movement is entirely driven by a capstan-tension system that provides a gentle path for the film to follow — a path safe enough for even original camera negative.

In an FSS, an electron beam is projected at a phosphor-coated envelope, producing a beam of light the size of a single pixel. This beam is then scanned across a film frame from left to right, capturing the "vertical" frame information. Horizontal scanning of the frame is then accomplished as the film moves past the CRT's beam. Once this photon beam passes through the film frame, it encounters a series of dichroic mirrors which separate the image into its primary red, green and blue components. From there, each individual beam is then reflected into a photomultiplier tube (PMT), where the photons are converted into an electronic signal to be recorded to tape.

It should be noted that while the film is stopped on an individual frame for color-correction, the FSS expands its CRT patch to scan much like a television set, from the top left corner progressively down to the bottom right corner, providing the telecine colorist with a live real-time scan of the film frame. The colorist can then use this scan as a guide for color-correction.

When this technology was first introduced, the single progressive CRT scan-patch worked well for the European PAL 625/50Hz television standard, which utilizes a 25 fps filmed image that is scanned to a single frame of video also running at 25 fps. However, when the CRT technology was presented in the United States, where the NTSC 525/60Hz standard is used, a mathematical interpolation method was required divide a 24 fps film original into a 30 fps video system (see diagram above). In Cintel's original machines, this was accomplished through seven different scan patches, all working simultaneously to scan a single frame and output that information in a 30 fps format. At times, this somewhat complicated system would misalign one of the patches, resulting in a slightly jittery image.



Opposite: Detail from the Cintel C-Reality's automatic tension adjustment system. This page: For "2:3 pull-down," information from the first film frame (frame A) is sent to fill both fields of the first video frame (2). The second film frame (frame B) is sent to fill both fields of the second video frame, and the first field of the third video frame (3). The third film frame's information (frame C) is sent to fill the second field of the third video frame and the first field of the fourth video frame (2). Finally, the fourth film frame (frame D) is sent to fill the second field of the fourth video frame as well as both of the fields of the fifth video frame (3). Through this interpolation, a conversion is made from 24 to 30 fps.

Cintel's MkIII and Ursa systems

The next generation of Cintel telecines, the MkIII series, had a digital-store system in which the CRT scanned each film frame once and digitally recorded that information, which could then be interpolated into the 3/2 interlaced-scan format and output as an analog video signal. Color-correction on the early MkIII machines was usually accomplished by varying the primary gain voltages on each of the three photomultiplier tubes.

Further advancements made to the MKIII systems converted

THE PORTABLE TELECINE

Although not a traditional telecine machine, Los Angeles-based MaestroWorks provides an extraordinary portable telecine for use on location. The CineMaestro Telecine System is an entirely self-contained, shippable telecine device based on the film-chain concept. Utilizing a KEM flatbed, the CineMaestro mounts a 650-line resolution three-chip CCD camera in place of a viewing screen, and controls the film's movement via an incorporated computer system. With the CineMaestro, an operator can capture printed dailies onto any tape medium, or directly into an Avid-type editing system with an automatic database compilation as the film is transferred. Contained in one rack-mounted AKS airline shipping case, the system is ready to go wherever the production goes. The Maestro has been utilized on such feature films as *L.A. Confidential, A Simple Plan, Mouse Hunt* and, most recently, *Forces of Nature.*

This system is comparable to the Swiss-made Sondor OMA-S Telecine, which was also a self-contained, rack-mounted telecine that was driven by a variable-speed servo-controlled motor. A halogen lamp illuminated the film while a rotating 24-facet prism reflected the moving frames to a ⅔" CCD camera. With either system, the capturing of printed dailies from remote locations in the editing room provides the production team with considerable flexibility and convenience.

— Jay Holben

much of the color-processing equipment from analog to digital. Notes Peter Swinson, market-development director for Cintel International, "In 1989, we launched the Ursa, which was entirely digital. Prior to that, the color channel [in the MkIIIs] had been analog. On the Ursa, just after the CRT scanned the film image [into the PMTs], we immediately converted that information to digits, so the entire color channel and all of the color-correction was done digitally. The Ursa was then capable of outputting digital information as a 4:2:2 signal."

The "4:2:2" term, which remains a cryptic mystery to some, refers to the ratio of sampling frequencies used to digitize the luminance (Y) and color difference (chrominance) components (R-Y and B-Y). For every four samples of Y, there are two each of R-Y and B-Y, which comprise the color signal. This capture standard is the basis of the 601 (ITU-R) standard-definition digital signal.

"We then came up with the Ursa Gold," expands Swinson. "That machine included 4:4:4 outputs [four samplings of luminance (Y) and chrominance color difference (R-Y and B-Y)], as well as full-resolution RGB, rather than the half-resolution chrominance of the original Ursa. Subsequent to Ursa Gold, we introduced the Ursa Diamond, which had the same basic functionality, but added other devices to improve image quality." Some of these upgrades included the utilization of after-market technology manufactured by Innovation TK (ITK), including the TWiGi and SCAN'd AL systems (which were subsequently dubbed Diamond Glow and Diamond Clear, respectively).

A re-engineering of the Ursa's analog-to-digital conversion system, the TWiGi virtually eliminates noise. The TWiGi also included a revised set of head amplifiers to reduce artifacts, and a tube-grain corrector that completely eliminated the problems of added phosphor grain. These innovations also had the incidental benefit of greatly extending the machine's CRT life. The TWiGi also compensated for the tube-burn effects that had plagued earlier systems. Over time, an electron beam can "burn in" the phosphors on the CRT and cause a disproportionate aging of disparate areas of the tube, producing visible light and dark patterns. This effect is then seen as uneven illumination across the film. To alleviate this, the CRT system incorporates "burn correctors" which electronically compensate for discrepancies in phosphor burn. A separate photomultiplier is used to monitor the light output from the entire face of the CRT. Variations are reported to a shading-correction system, and are electronically neutralized in the final video image. In addition, the phosphors of the CRT have their own grain characteristics which can be imposed as noise on the video image. In advancing the technology of the early Ursa telecines, the TWiGi also greatly improved the components dealt with these problems.

ITK's SCAN'd AL deals with yet another problem inherent in converting a film image to an electronic one: vertical aliasing. If the film image is a shot of, say, a picket fence, the CRT scanning from left to right captures the vertical edges of the fence, while the movement of the film across the beam gathers the horizontal height of each fence post. Due to the very fine lines in the fence edges, however, sometimes the image information may fall between the pixels, creating a jagged image, or aliasing. The SCAN'd AL converts the rectangular CRT pixel beam into an elliptical shape that smoothes out the information between pixels to provide a cleaner, sharper picture.

ITK also developed the "Y-Front" attachment for Ursa telecines

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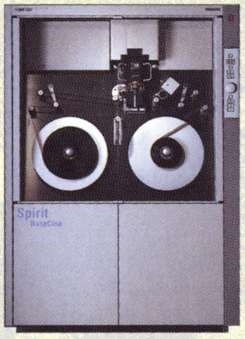
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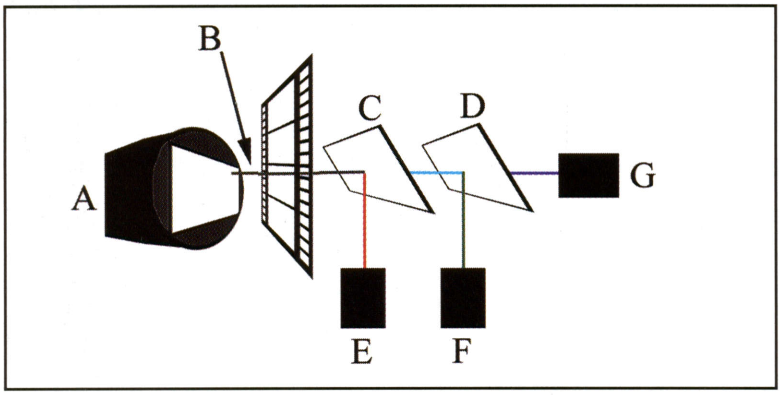

A diagram of the CRT scanning method. The CRT (A) emits a photon beam (B) that passes through the film plane to a dichroic mirror (C), which sends the red wavelengths to a red-sensitive photomultiplier (E). The remaining cyan beam strikes a second dichroic mirror (D) and sends the green wavelengths to the green-sensitive photomultiplier (F). The remaining blue light beam is directed into a blue-sensitive photomultiplier (G).

that eliminated one of the two optical mirrors from the image path. "On Ursa and MkIII telecines, the CRT scan-system is deflected through a set of mirrors before the beam hits the lens, which focuses it onto the film," Swinson explains. "Another mirror then reflects the resultant optical signal into the cell box, where it is converted into an electronic signal through the photo-multipliers. Each mirror surface [in a system] will reduce the light levels somewhat. Even if it's a very good mirror, you get attenuation from the mirrored surface, plus some geometric errors." The Y-Front addition moved the photomultipliers to the front of the machine, directly above the film path — thereby eliminating the second mirror and any inherent optical aberrations.

Cintel "Sees" Reality

Until this point, all of Cintel's systems — from the MkIII to the Ursa Diamond — operated at a standard definition of 720 x 488 pixels. As the requirements of high-definition (HD) and digital presentation become more prevalent, however, Cintel again rose to the task and presented the industry with their next-generation telecine platform, the C-Reality.

Touted as a "radically new film-scanning system," the C-Reality features resolution options from standard definition (720 x 488), to high-definition (1920 x 1080) and 2K (2048 x 1556) high-resolution data capture. Cintel has continued to utilize its enhanced CRT technology, equipping the system with advanced components such as solid-state sensors (or avalanche photo-diodes, a military-spec version of photomultipliers), four separate photomultiplier sensors to monitor the CRT's burn and shading correctors, a reverse patch-scan (which increases tube life by enlarging the patch during "film run" mode rather than reducing it), and an advanced colorimetry system that increases the colorist's palette (making specific colors easier to reach without pushing system capabilities). The optics between the CRT and the film plane also incorporate an f-stop control. "This feature replaces an ND filter

TELECINE COMPARISON CHART:

Machine:	Imaging Device:	Source:	Transport:	Stability:	Outputs:
MkIII	PMTs	CRT	Continuous	Servo/edge guide	25/625
Ursa	PMTs	CRT	Continuous	Servo/edge guide	525/625
Ursa Gold	PMTs	CRT	Continuous	Servo/edge guide	525/625
Ursa Diamond	PMTs	CRT	Continuous	Servo/edge guide	525/625
C-Reality	APDs	CRT	Continuous	Servo/edge guide	525/625/HD/2K
FDL-60	Line-array CCDs	Xenon	Continous	Servo/edge guide	525/625
FDL-90	Line array CCDs	Xenon	Continous	Servo/edge guide	525/625
Quadra	Line array CCDs	Xenon	Continous	Servo/edge guide	525/625
Quadra Vision	Line array CCDs	Xenon	Continous	Servo/edge guide	525/625
Spirit DataCine	Line array CCDs	Xenon	Continous	Servo/edge guide	525/625/HD or Steadiscan /DTV/2K
CP TeleScanner	Full-array CCDs	LED's	Intermittent		Pin-registration HD/2K
Sony FVS 100	Full-array CCDs	LED's	Intermittent		Pin-registration HD/2K
CineMaestro	650-Line CCD	Halogen	Intermittent		Pin-registered 525/625
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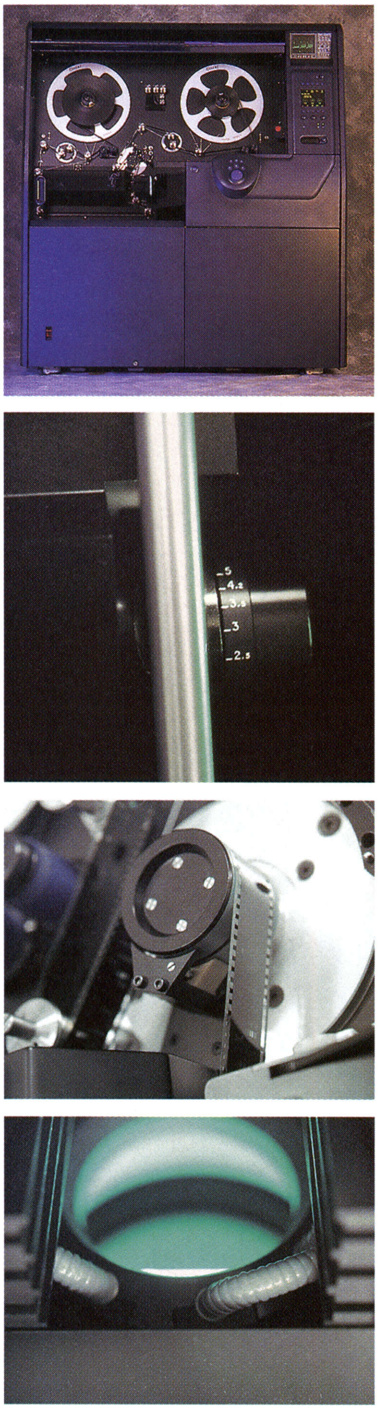

From top: Cintel's C-Reality telecine; the custom Eastman Kodak lens in the C-Reality with f-stop aperature designations; the capstan wheel in a continuous-motion telecine advances the film through gentle tension without the use of sprockets; two of the C-Reality's independent photomultipliers dedicated to monitoring output from the CRT.

wheel that was used to control the brightness from the CRT," offers Mike Orton, a freelance engineer who was presented with the formidable task of installing one of Los Angeles' first working C-Reality machines at 525 Post's new Santa Monica location. "The aperture control gives you a better depth of field at the gate by stopping the lens down. If you have film that is slightly bowed, for instance, you can now stop down and render the whole frame in focus."

The CRT output of the C-Reality has two modes: 150-micron or 300-micron output. The system's tension servos are computer-controlled, so more or less tension than normal can be applied when required. The C-Reality operates internally with 14-bit data and outputs 10-bit signals for video and 12-bit data for digital collection. One bit can describe two levels or states (on/off, black/white, etc.). In an 8-bit RGB system, each signal (R, G and B) can define 256 levels of that color (or 2 to the eighth power), but in a 10-bit system, each color channel can describe 1,024 levels (210). Likewise, there are 4,096 colors (212) in a 12-bit system, and 16,384 colors (214) in a 14-bit system. At 14-bit data-resolution, the system renders a total color palette of 4,398,046,511,104 color combinations (16,384 red x 16,384 blue x 16,384 green) — considerably more than the standard 8-bit 16,777,216 colors. This increased color range now reflects the image subtitles of emulsion negatives and positives much more accurately.

Further advancements on the C-Reality also include the introduction of the color-vector image processor (CVIP), which is a six-vector, 14-bit digital color processor. Using the CVIP, a colorist acquires six individual vectors for isolation and manipulation of selected colors that are no longer inhibited by the restrictive 30-degree cyan, magenta,

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yellow, red, green and blue vectors of the Ursas. With the CVIP, the secondary color-correction can be specified by any hue, saturation and luminance, in any specified vector angle, without introducing additional noise.

The CVIP also offers the unique ability to separate primary lift and gain control from the gamma of the image. With this option, the colorist can manipulate the black and white levels independent of the overall image gamma. The black level can be lifted or crushed without stretching the gamma or affecting the white level; likewise, the white levels can be adjusted without affecting the black or gamma range. "By having that control," explains Swinson, "we can stretch more detail out of the whites and out of the blacks of the film, getting a much more subtle, compressed, or stretched look, while still keeping the mid-range where it is. This allows more creative control to preserve the original film densities and manipulate how they're represented as an electronic signal."

Following the Y-Front concept, the C-Reality system offers a Direct-Scan system without any additional mirrors whatsoever. "With C-Reality," Swinson explains, "we elected to use a straight path where the CRT is firing right at the objective lens, which then focuses that scan onto the film image, with the resultant light from the back of the film image projecting straight into the cell box. We've now eliminated the two mirrors present in the Ursa systems to offer a cleaner, purer signal."

The C-Reality also fulfills several requests from clients by supplying three individual 3" x 3" filter holders between the CRT and the film path, allowing the introduction of various light-affecting media into the mix. Cintel has designed a system with an open mind, preparing for digital HDTV and whatever else the future might bring. To

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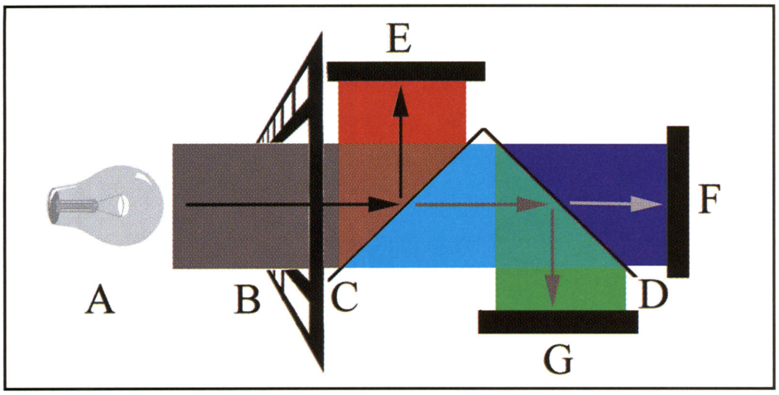


A diagram depicting the CCD scanning method. The xenon light source (A) sends a beam through the film plane (B) and a series of dichroic mirrors (C and D), which separate out the primary colors red, green and blue from the light source and send them to their subsequent CCD sensor arrays (E, F and G).

simplify technical support on their machines, the company also incorporates an optional modem link-up directly with the C-Reality's diagnostics so that a technician halfway across the globe can analyze the internal systems and correct the problem.

Philips and the CCD

While Cintel was presenting its MkIII to the United States, Philips Digital Video Systems Company (formerly the Robert Bosch Company) introduced their FDL-60 telecine. Attacking the electronic-film interpretation task from a different perspective, Philips utilized the fairly new technology of solid-state charge-coupled devices (CCDs) to translate film into video.

The CCD was developed in the 1970s by Bell Laboratories. On the face of the CCD, photodiodes build up an electrical charge based on the amount of light falling on them. After a selected period of time, that charge is then transferred — or coupled — out of the device. Because the photodiodes on the CCDs are very small, many of them can be placed in a large, flat array capable of converting complete images into electronic signals. The FDL-60 used a single-line array system, whereby three lines (1,024 diodes per line) of photodiodes — each independently sensitive to one of the three primary colors — are set up to record a single line of the film image.

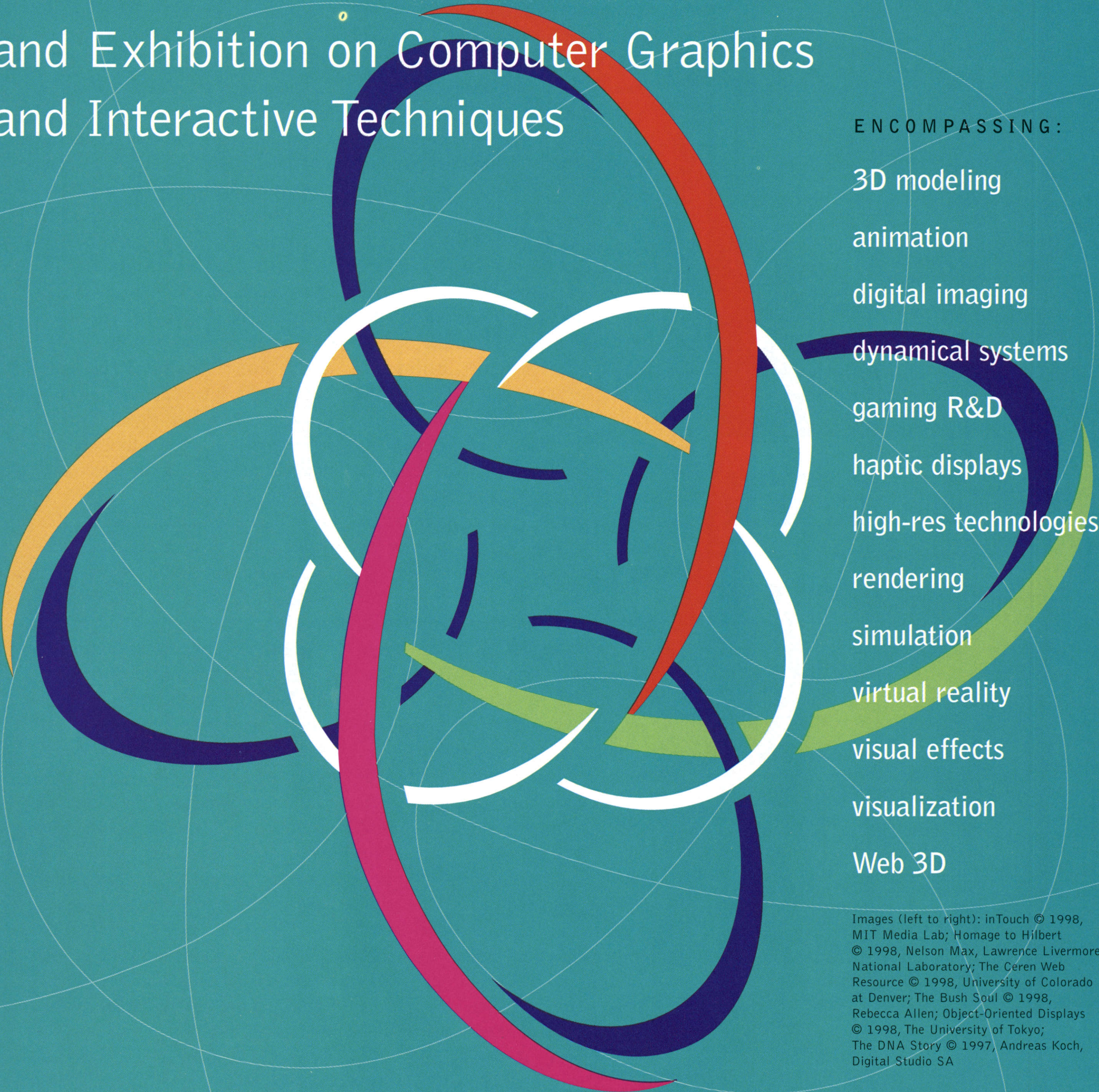
In order to scan a frame, the CCD machine requires the film to move through the single array's line of sight. Like the CRT-based machines, the CCD telecine uses continuous motion driven by capstan-tension servos. "Vertical" frame information is scanned by each of the photodiodes across the array, and the "horizontal" information is captured from the top of the frame to the bottom as the film moves through the gate. This process results in sequential lines of video that are subsequently converted into a fully interlaced video frame in the frame store. However, unlike the CRT — which can expand its scan patch to scan an entire live frame without the motion of the film — the single-line array CCD cannot present a live image without the continuous motion of the film. Therefore, color timing and frame-sizing manipulation are accomplished from the digital frame store, and not from an initial, real-time image.

In the CCD-based system, light is projected by a Xenon bulb through focusing optics onto the film plane. Once it passes through the film plane, the light is then diffracted through a prism into separate red, green and blue beams for each CCD line array. This information is processed by a combination of digital and analog video circuits. Corrections are then applied for shading and sensor noise, and all three signals — red, green and blue — are passed to individual processors, where gamma correction and black-level settings are performed. The three separate signals are then matrixed into one luminance signal (Y) and two color-difference chrominance signals (R-Y and B-Y), which are fed into the digital frame store.

The Philips FDL-60 was originally designed specifically for European broadcasters who were forgoing an intermediate tape medium and sending the film image directly to air for presentation. As video technology advanced, so did Philips with their next-generation telecine — the FDL-90 — which was introduced in 1990. It was similar to the FDL-60, but featured an upgrade to digital video (4:2:2) outputs and an increase in the CCD line arrays to 1,332 pixels each, providing a 30 percent increase in image resolution. The FDL-90 was also equipped with a 16:9 video output, but like its predecessor, the machine provided standard definition in either 525/60Hz or 625/50Hz options only.

Philips's Quadra

The next step for Philips was the development of the Quadra, a machine designed with an advanced toolset more suited to higher-end commercial post houses, where advertising agency representatives, directors and directors of photography often attend the transfer sessions. The system's advanced toolset offered a great deal more creative flexibility to the colorist than was required for a simple "one-light" dailies session. Still operating in standard definition, the Quadra's toolset included an advanced colorimetry range to more accurately represent the color rendition of film emulsion, zooming capabilities for considerably more control in image resizing (both for creative options and for various aspect-ratio discrepancies), and an increase in the variable-speed drives within the capstan-servo system.



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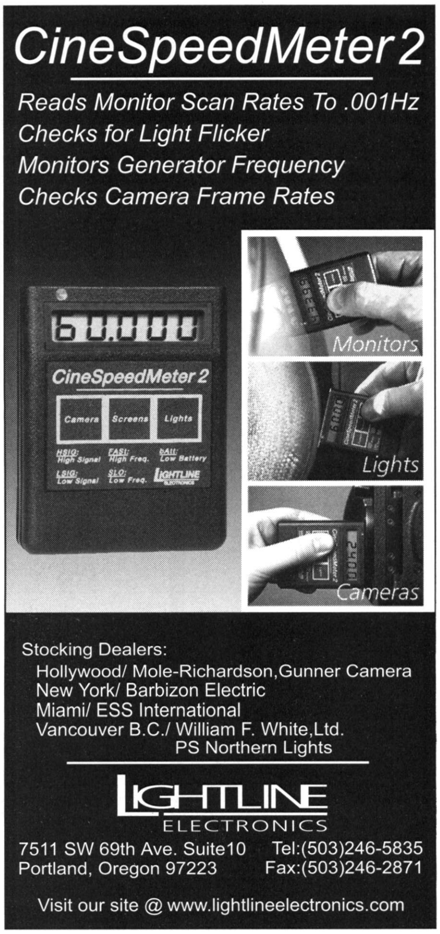
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Philips later took the advanced toolset of the Quadra and improved the optical system for the Quadra Vision, which provided a more "natural" resolution and higher signal-to-noise ratio (via improvements in the optics which allowed more light to pass through to the CCD sensor arrays). The Quadra Vision is Philips's top-of-the-line, all-digital, standard-definition machine.

Spirit DataCine

In 1996, Philips introduced a new kind of telecine device: a multi-standard, multi-resolution, real-time film-scanning system called the Spirit DataCine. With the Spirit, image-capture is always performed at 2K (1,920 pixels/line) resolution, while the output standard is completely definable by the end user. Continuing to utilize CCD technology, Philips collaborated with Eastman Kodak to custom-design high-resolution CCDs exclusively for the Spirit DataCine.

Kodak also developed an advanced optics system for the Spirit, ensuring a higher-resolution image presentation for the CCD arrays. Like the Quadra, the Spirit employs an ultra-efficient Xenon lamp, refined as a diffuse rather than a point source. Via a condenser lens, the light is focused into an integration cylinder, where the intensity is optically monitored and regulated. From there, the light is "sprayed" onto the film as a diffused source via an "output slit," which dramatically reduces the visibility of film-base scratches without refracting the image through additional elements. This achieves the same result as the wet-gate process through the light source alone.

The compatibility of this light source with various film elements (negatives, interpositives, prints, and even Kodak's 640T PrimeTime stock) is regulated through a custom-designed filter wheel between the source and the film gate. A custom filtration system is also supplied with the Spirit, allowing the insertion of diffusion filters into the light path. (The Spirit offers a series of black-and-white Supermist filters for this procedure.)

Once through the emulsion, the light is directed through a Kodak-designed projection lens to a "white beam" prism, which separates the light into red, green, blue and detail signals. The detail CCD, which captures information through the back of the prism, is constructed as four linear sub-arrays of 480 photosites each — all located on a single chip. Each of the color CCDs comprise 960 photosites, all of which have a total physical area that is four times larger than the detail array. This larger area size produces a considerably higher signal-to-noise ratio. Once the image information is in electronic form, it is then recorded as 14-bit, 2K data.

The Spirit DataCine is capable of real-time transfer rates of over 350 megabytes per second. Says Steve Russell, marketing manager of film-imaging products for Philips, "Traditional film scanners record at about 10 to 30 seconds per frame. The Spirit can do the same 2K scanning at six frames per second. The Spirit can scan 2K resolution in real time — at 24 fps — but that [datarate] overwhelms the current computer technology at the moment, so we have to slow the scanning rate down to 6 fps to allow the computers to keep up!"

This increased scanning speed enabled the production team on the recent film *Pleasantville* to scan over 180,000 frames of film at 2K resolution — in just over eight hours — using the DataCine at Cinesite in Los Angeles, where much of the film's elaborate color-processing work was done (see *AC* Nov. 1998). The fastest traditional film scanner would have required 300 hours to accomplish the task.

The Spirit also offers Steadiscan, a passive electronic registration system in which no pins or additional mechanical parts are brought into contact with the film. With Steadiscan, perfect registration is accomplished through a high-resolution camera that monitors the film's sprocket holes and precisely measures any deviation in their position, digitally correcting for any vertical and horizontal instability before the image is output.

Additionally, Philips also offers Specter, a process which is described as a "Virtual DataCine." Steve Russell explains, "Normally, during the process of transferring a film, you go into a scene, stop the telecine and then the colorist — along with the client — will make creative decisions about how the image should look. That can take a long period of time, during which the system, realistically speaking, is basically acting as a million-dollar frame-store device. During a normal telecine session, the Spirit is spending 80 to 90 percent of its time in stop mode. The colorist works from the frame store while the machine just sits there. We wanted to come up with a way of dividing this work flow, so that you could use the telecine as a scanner and then artistically deal with the images in a total digital realm.

"To accomplish that, we make a virtual copy of the film electronically and feed that information into a Specter. As far as the colorist and client are concerned, there is no difference — it feels as if they're working off a Spirit, but they're playing the information from a disk and 2K by 2K data. They still have all of the functionality associated with the Spirit — there is no compromise whatsoever in terms of creativity. In fact, you've got more power than you've got on a Spirit. You now have random access to the information. On the Spirit, if you're working with a 2,000' film roll and you want to go back to the first scene, you've got to sit there and wait for it to rewind. In the digital realm, that access is

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"Also, in normal telecine mode, as the colorist runs from scene to scene, the film is running backward and forward on the reels. No matter how clean the environment, the film — which is very statically attracted to dust — is going to gather dirt. Running this dirt back and forth can cause irreparable damage to the film. Once footage has been digitized, you can go backward and forward all day long and never pick up any dirt or scratches that may damage the film."

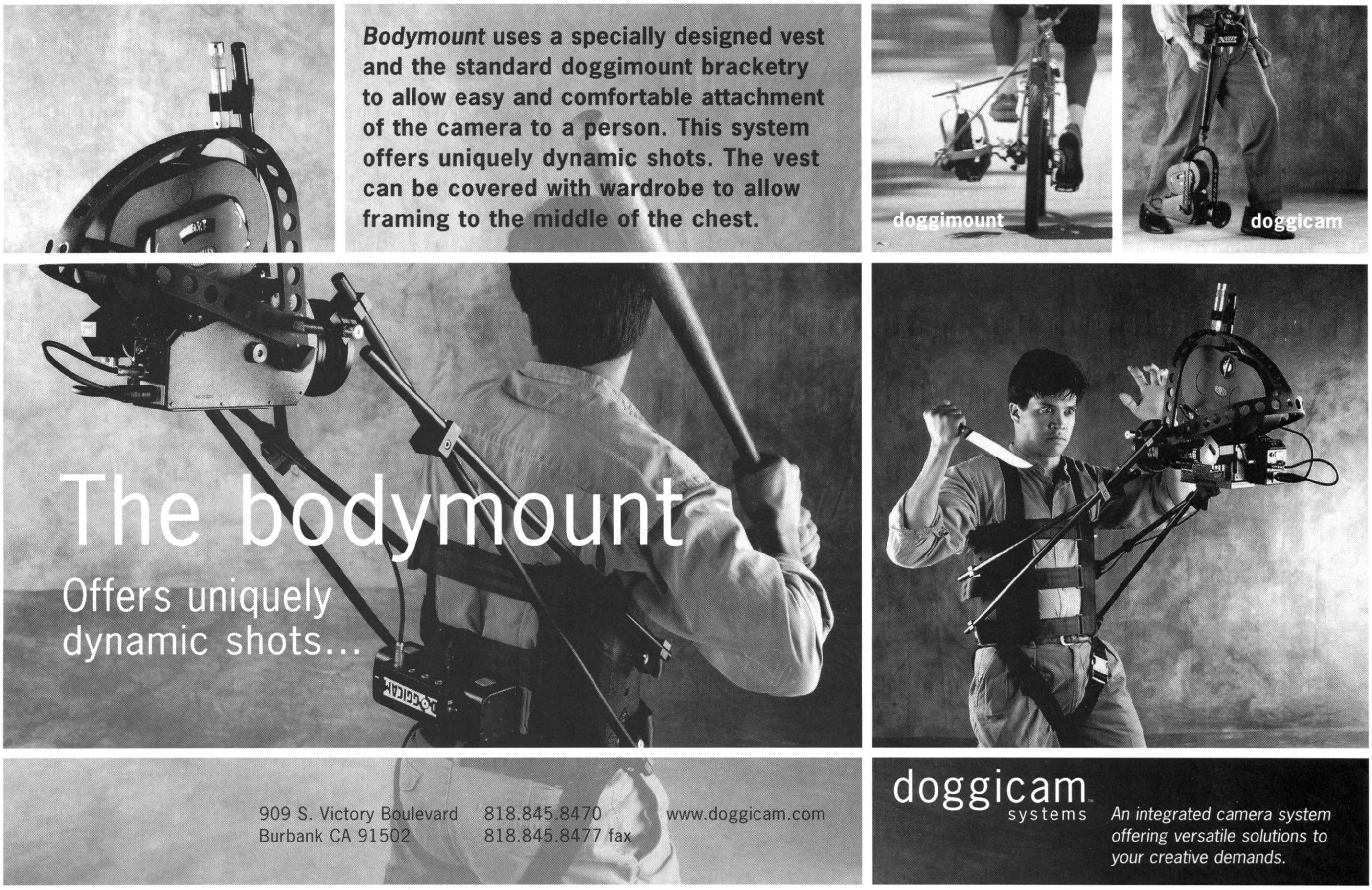
Through the use of multiple Specter Virtual DataCine systems, a facility can more effectively utilize the abilities of one Spirit to feed many Specter locations, thereby creating a considerably more cost-effective, multiple-suite facility. Since there are no complex mechanics or optics involved with the Specter — a hard-disk array with almost a terabyte of storage space — the acquisition cost substantially is lower than obtaining another Spirit.

Furthermore, future expansion plans for the Specter include Conformer's Editing, which allows one to input an edit decision list from an Avid or other offline editing system and automatically conform the digital 2K film data into the electronic equivalent of a negative cut. This information can then be output back onto film. A system of this nature would not only significantly reduce production costs, but offer a wider creative range of film images.

The High-Definition TeleScanner

Working in cooperation with the Sony High-Definition Center, Los Angeles-based Cinema Products recently unveiled their HD TeleScanner. Returning to the film-chain concept, the engineers at Sony and Cinema Products combined the precise pin-registered movement of an optical printer with an HD video camera to capture real-time, HD images with rock-solid stability. The CP TeleScanner also employs a CCD system, but it uses a full-area array as opposed to the line arrays utilized in the previously mentioned systems.

The TeleScanner's imaging system consists of a Sony HDC-750 HD camera. The system's transport movement is an integration between intermittence and continuous motion — a low-inertia, high-torque DC motor with pin registration. Here, the pin-registered system is not in mechanical linkage to a pull-down system, as is the case in cameras and other pin-registered film scanners. Instead, the pins in the TeleScanner are controlled electromagnetically using an exotic but highly reliable actuating technology. This approach provides the precision required for



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Pulldown and registration on the TeleScanner takes less than eight milliseconds to accomplish. The HDC-750 CCD then captures the full-film frame in 1/1000 of a second, allowing plenty of time to pull down the next frame while maintaining a 24 fps real-time speed. "With the pin-registration system, you eliminate any possibility of gate weave or a jittery image," states Don Miskowich, vice president of HD business development for the Sony High-Definition Center. "When you have a steady image, you also get benefits downstream in the world of digital broadcast and DVDs. In all of the formats that are going out in digital form these days, some form of compression is being used to deliver the picture to the customer. In the case of DVDs and over-the-air digital broadcast, it's an MPEG-2 compression system. Any compression algorithm depends a lot on similarities between frames. Identical information in each frame is not necessary to replicate — hence the compression of information without loss in image quality. However, if there are extra jitters and weave in the image, the compression system works harder to interpret those movements of an otherwise stable object as viable information. When you have a stable, low-noise picture, the compression system does a much better job of describing what's in the picture."

> **"With the pin-registration system, you eliminate any possibility of gate weave or a jittery image."**
>
> **— Sony vice president of HD business development Don Miskowich**

Another unique and innovative aspect of the TeleScanner is the construction of its lamp house. The TeleScanner does not use a Xenon lamp; rather, the system uses an LED lamp house that was custom-designed by the Sony High-Definition Center. It is comprised of roughly 300 light-emitting diodes of equal parts red, green and blue. The LEDs pulse in varying lengths to describe the varying levels of colored light that pass through the film to the full-array CCDs. Through this system, the primary color-correction is not happening in a digital realm, but in a purely analog environment — analogous, yet more flexible, to utilizing printer lights on a Hazeltine.

"The advantage here," submits

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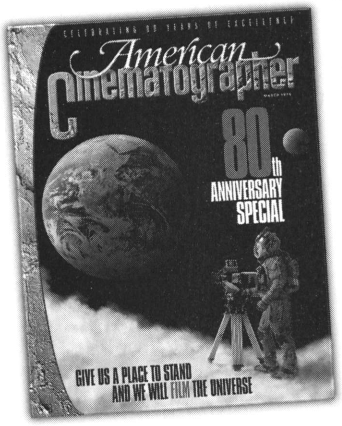
VIDEO TIP:

I've recommended "Visions of Light: The Art of Cinematography"(1992) once before, but there's a reason to do so again: as a companion piece to The American Cinematographer, a handsome monthly magazine whose 80th anniversary special issue is currently on newsstands (at least some of them) around the country. We live in a golden-also red, green and blue -age of cinematography, yet few moviegoers know what the best shooters do. Here are two good ways to learn.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Dr. Robert Hopkins, vice president and general manager of the Sony High-Definition Center, "is that we're generating a video signal that has exactly the right combination of red, green and blue for what the cinematographer and director want. This means that we don't have to attenuate or amplify different parts of that signal, which can give rise to noise. We end up with the best possible situation by having the lamp compensate for the color-correction, rather than doing it electronically."

"This is not in terms of printer lights," expands Miskowich. "In fact, colorists would be disappointed if that's all we gave them. Even though [this process accomplishes] the same thing as timing — adjusting the amount of red, green and blue content in the light — the colorists have a much finer control then they can get off of printer light scales. This innovation has put us in a position where the basic color-correction takes us to the right neighborhood before that light has even passed through the film. That way, when the camera collects that image, it has a full set of data that is already a long way toward the final image. From there, the director and the director of photography will typically go into a second stage of color-correction where they are not correcting off the film anymore — they're correcting digitally."

The High-Definition Center also employs the predecessor to the CP system, the Atsugi, a custom-designed telecine based on the same principals as the TeleScanner. This summer, Sony Digital will be offering their own telecine — the Sony FVS 1000 — which is based on the design of the CP TeleScanner. ■

The second half of this story will focus on the colorists who utilizes these devices, detailing which machines they use and how they have employed their respective capabilities on specific projects.

Short Takes

Sixties Kitsch and Solid Foundations

A Supercool Salute to Spy-Thriller Style

by Stephanie Argy

Inspired by director Mario Bava's groovy 1967 caper flick *Danger: Diabolik*, Beastie Boys band member/video director Adam "MCA" Yauch wanted the clip for his band's funky tune "Body Movin'" to emulate that film's colorful, near-psychedelic style. Yauch's plan was to combine footage culled from the cult-classic Italian spy picture with new material in order to flesh out a humorously absurd narrative featuring himself and fellow Beasties Michael "Mike D" Diamond and Adam "King Ad-Rock" Horovitz.

To achieve this, Yauch (working under his pseudonym "Nathaniel Hornblower"), turned to cinematographer Joe Zizzo to re-create the expressive camerawork of *Danger: Diabolik* director of photography Antonio Rinaldi. "This was an exercise in restraint, in not getting too slick," says Zizzo. "It was more about *not* doing than it was about *doing*."

Yauch and producer Bettina Schneider had a particular interest in working with Zizzo because of the cameraman's previous experience in re-creating period filmic styles. A year earlier, Zizzo and director Doug Nichol had made a video for the Pulp tune "This is Hardcore," emulating the camerawork seen in such 1950s pictures as *Written on the Wind*, which was photographed by Russell Metty, ASC.

While working on that project, Zizzo found that mimicking vintage movie photography requires one to rethink current cinematographic methodology. "You have to throw out the window everything you've learned about lighting having to be soft and contrasty," Zizzo says. "You have to go back to 'Lighting 101' — it becomes a key, fill, edge, backlight situation, which is the way they did it then."

For the "Body Movin'" clip, the cinematographer faced the additional challenge of having to precisely match the *Danger: Diabolik* footage in order for Yauch's editing plan to work.

In the comedic and thoroughly loopy spot, which apes *Danger: Diabolik*'s plot, a cat burglar (Ad-Rock) breaks into an 18th-century-style castle and finds a vault in the master bedroom. He blows it open, even though its foppish owner (MCA) is sleeping in bed just a few feet away. Waking, the dandy engages the thief in swordplay; a guard (Mike D) arrives just in time to see his employer get decapitated. The sentry and his boss — whose head is mysteriously reattached with a haphazard bandage — then pursue the thief to the castle's roof, only to see him escape via catapult. A madcap chase ensues, involving a helicopter, a Jaguar sports car, a plane, and a parachute. (Not surprisingly, this sequence involves the bulk of the material borrowed from Bava's film.) Finally, the burglar escapes and returns to his secret lair with his hard-won booty: a recipe for spaghetti sauce.

Beastie Boys Adam Horovitz (left) and Adam Yauch cross swords as bandmate Michael Diamond, resplendent in period finery, reacts from the sidelines.

While prepping the shoot, Zizzo's main task was to figure out how to reproduce *Danger: Diabolik*'s photographic style. "This was really the most extensive preproduction testing I've done so far," says Zizzo. "Bettina wisely decided that she was going to spend the budget in testing, and then achieve the right photographic look in the lab instead of relying too much on telecine."

Ultimately, though, Zizzo hoped not only to re-create the feature film's look, but also to fashion something much more subtle: "In reminding the viewer of how it feels to look at an old movie, you

Right: Director of photography Joe Zizzo. Below: The "Body Movin'" electrical crew, clockwise from top: electric Graham Willoughby, gaffer Patrick Cady, best boy Kate Phelan, electric Jon Hokanson and electric Bob Omer. Below right: Electrics John Hokanson (left) and Nate Thoma.

want to evoke an emotional reaction," he submits. The cameraman adds that the Matt Helm spy comedies (which starred Dean Martin) were also a major influence on the visual approach to "Body Movin'."

Since Zizzo and Schneider had both recently read extensively about bleach-bypass work, the duo ran some initial tests with the process in order to emulate the desaturated colors of *Danger: Diabolik*. After realizing that bleach-bypass had not been widely used in the Sixties, however, they abandoned their experiments and began toying with a variety of other approaches that would lend their footage a softer ambiance. These included underexposing and overexposing; pushing, pulling, and flashing; and doing telecine tests from projection and low-con prints, as well as internegatives. "The only disappointment was that we were not able to test the Technicolor dye-transfer process," says Zizzo. "Ultimately, what we came down to was a pretty simple procedure." The solution involved using a combination of 1960s-era Cooke lenses that had been remounted by New York's Camera Service Center, as well as some careful lab work done at Technicolor New York.

While shooting the spot with Kodak's 100 ASA EXR 5248, Zizzo always pulled the exposure by one stop to desaturate his imagery. From the camera negative, he struck an interpositive and then an internegative, which was used for the final telecine session.

In terms of lighting, Zizzo and gaffer Patrick Cady "tried not to use any fixtures that didn't exist in the 1960s," the cameraman says. "We kept stopping ourselves from diffusing too much, being too contrasty, or doing anything else that is now normally considered to be 'good lighting.'"

Zizzo wound up using a hard-light approach by applying a lot of large lamps, using old tungsten studio 10Ks for his key and various softlights for fill. "We were lucky in that all of the lights we used were the cheapest available," the cameraman remarks. "It was a really basic package, which was great because our production didn't have the money to spend on Kino Flos, Chimeras, Dedo kits, or any other little tricks."

Production designer Hillary Snyder also helped Zizzo out by precisely duplicating the color palette from *Danger: Diabolik*. "Half the battle is often getting the right thing to shoot," the cinematographer affirms. "If the set is wrong, no amount of lighting or filtration is going to fix it."

Zizzo's camera was an Arriflex 35-III, and his crew was led by first assistant Chris "Silky" Bottoms. Like the shoot's other elements, the camerawork remained relatively simple; filtration was employed only on a modern zoom lens, with a little diffusion added so that the image quality of the zoom would match that of the old Cookes.

The "Body Movin'" video was shot over the course of two days, entirely on stage at New York's Silvercup Studio. Zizzo notes that Yauch was well-prepared and had storyboarded the entire spot. "Adam was really good," says Zizzo. "He knew what he wanted, and was really good at figuring things out on the fly. I found it a pleasure to work with him." In preparing to film his own role on the second day of the shoot, Yauch arrived on the set sporting a fake mustache, a nightshirt and bunny slip-

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pers. "It was a bit difficult to treat him with the same seriousness," Zizzo admits with a laugh.

"Body Movin'" was assembled at 89 Greene, a New York-based editorial boutique which also carries out graphics, sound design and effects work for its clientele. Editor Tim Cahill notes that because Yauch wanted to follow the style of *Danger: Diabolik*, he was able to cut the video in a more feature-like manner, rather than using the rapid-fire pace employed in most music videos. "It was more about the pacing then about jamming the cutting at somebody," Cahill says. "It was fun to do that in a music video, because the other ones I've done have tended to be more aggressive, just cutting on the beat."

After the editing was complete, Zizzo took one more pass at color-matching the final print. "We sent the timer, Joe Violante of Technicolor, a copy of *Danger: Diabolik* as a reference, and he matched our footage to it. That really helped a lot during the final telecine, which was done by Bill Willig at Princzco New York."

Rebuilding History

by Stephanie Argy

"Integrity," a recent spot for New York Life Insurance, compares the company's stability to that of its emblematic skyscraper. To establish the rock-solid history of that building, the 30-second ad utilizes jumpy black-and-white documentary-style footage depicting the structure's 1926 design and construction. Ironically, most of this "archival" material was created by director/cinematographer Caleb Deschanel, ASC, who shot much of the spot in downtown Los Angeles. "The most important thing was studying the authentic footage we had, which served as our guide," says Deschanel. "We did some pre-selection of stuff we liked, and based on that, we made decisions on what we would do." The idea was to combine actual stock footage of the construction of the building with Deschanel's modern re-creation. But first, the crew had to construct a convincing version of the 1926 building site.

Spring Street in downtown Los Angeles has many tall, Twenties-era buildings whose facades offered the right look for the "Integrity" spot. Unfortunately, many of them have been altered over the years, particularly on the lower floors. "Generally, the first and often second floors are modern," says Deschanel.

However, Deschanel and production designer Allen Jones realized that by ringing their "construction site" with a tall wooden wall and then framing camera angles carefully, they could cut out the lower floors, as well as cars, buses and any passing pedestrians in modern clothes. "By putting a construction wall around our site and controlling our angles, we were able to preserve the illusion," Deschanel attests.

After concluding that the Spring Street area would work, the filmmakers began looking for a parking lot they could dress as the site. "The most important thing was to find a location," notes Jones, who adds that they looked at several different lots before making their final selection. "The one we picked needed a little more work, but the architecture around the area lent itself to what we were trying to do."

The first step was erecting the wooden wall around the perimeter of the lot. Jones used other methods to hide any additional extraneous background details. "We covered one of the signs with Duvateen," says Jones. "I also blacked out traffic lights by putting a billboard up." Other lights and signs were obscured with trees. The surface of the parking lot was then covered with truckloads of dirt, and period cars and construction vehicles were driven into the area.

Deschanel says that working in black-and-white further aided this sleight of hand. "There were certain details that got lost in the black-and-white," he confirms. "That really helped us out."

The cinematographer says that he continues to find black-and-white to be an interesting challenge. He explains that working in black-and-white is all about contrast, not only because the stock has a much wider range, but because contrast is all that creates the sense of separation and depth in the image. He adds that every cinematographer must always keep this in mind: "You get fooled sometimes, because you're looking at something in color [on the set]."

Not settling on any one consistent photographic approach was key to Deschanel's design for the "Integrity" spot. He points out that authentic newsreel-style clips often look very different from one another, depending on the

Caleb Deschanel, ASC (in cap) oversees the modern re-creation of a 1926 construction site while filming "Integrity," an innovative commercial spot for New York Life Insurance.

stock footage company from which the clips are obtained, and how well the firm has preserved the film. To give his re-created footage that same textural feel, Deschanel and his crew deliberately varied their visual style.

Producer Beth Anthony says that although Deschanel considered shooting with antique hand-crank cameras from the era he was trying to re-create, the cameraman ultimately decided to use a Panavision Panastar and Kodak's 5222 monochrome stock. He treated the film in different ways, underexposing some shots while overexposing others, often while running at different frame rates. At times, the camera was turned on and off in mid-take to create the effect of a malfunctioning shutter.

This tactic also applied to the lenses, some of which, unlike the camera, were definitely not standard-issue. In keeping with his goal of making the various shots look uniquely different, Deschanel used lenses in all conditions — some very clean, and others far from it. "There was one lens in particular — an old Bausch & Lomb unit — that was really iffy, but we shot with it," he recalls. Because the lens vignetted around the edges, he tended to use it primarily for portraits, though putting it on the camera took some courage. "It scared the hell out of me," Deschanel admits. "I'd look through the viewfinder and be terrified that the image wouldn't turn out."

Despite the construction wall and all of production designer Allen Jones's work to camouflage undesirable modern elements in the Spring Street location's background, Deschanel still had to work with a vista of approximately 90 degrees. As a result, he had to plan his shots very carefully. "We were forced to storyboard the spot, because we were limited in terms of the size of the set," he says.

In confronting these limits, Deschanel worked closely with the production designer. "We've collaborated a lot," says Jones. "We choreograph every shot, so I know exactly where he's going to be, and how much I have to build. I always ask my directors

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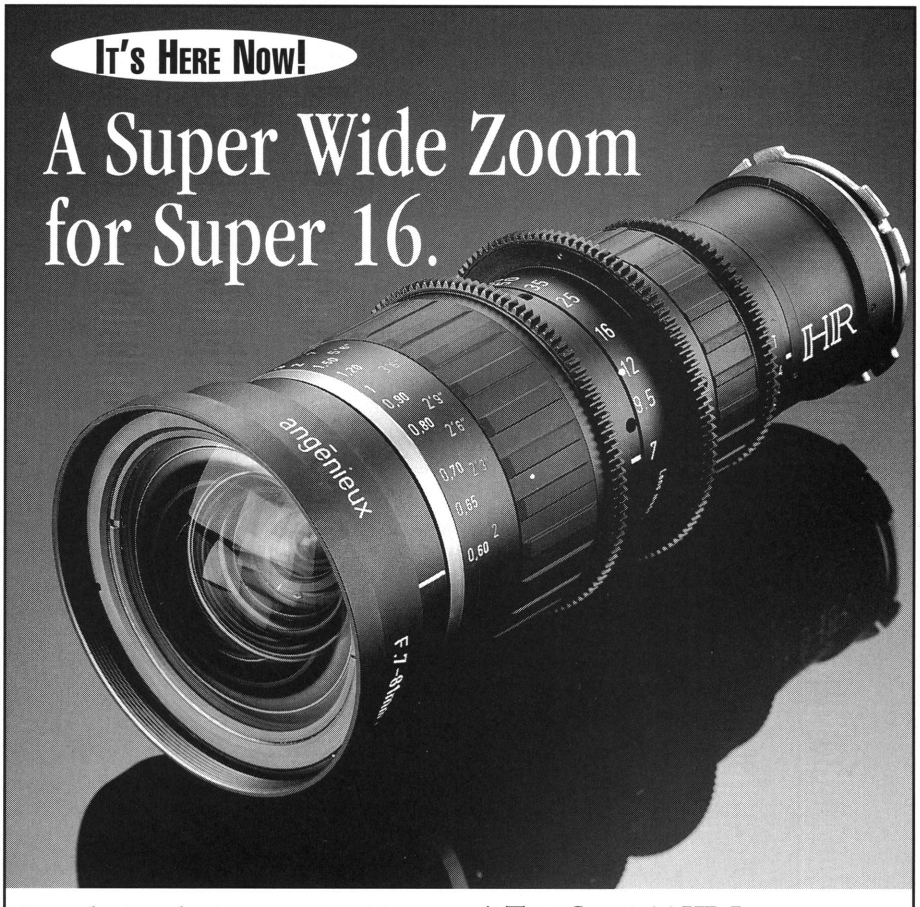
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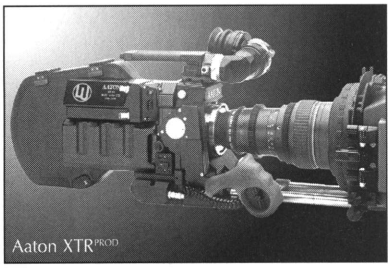

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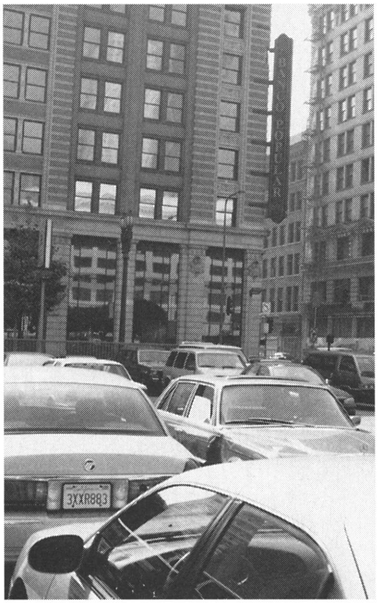

A look at the present-day building used for the "Integrity" spot. Various techniques were used to block any modern elements from view.

if they are they going to shoot wide-angle or tight, because I have to pre-think the setups. It's a matter of knowing the lenses and understanding what those lenses see."

In addition to the footage in the parking lot, Deschanel's crew shot in a nearby office building, where an insurance company's space was converted into a period architect's quarters. They also erected an outdoor bluescreen in an adjacent parking lot so they could photograph actors portraying construction workers toiling high up in steel superstructure of the New York Life Insurance building. The actors would later be composited into existing stock footage.

The appearance of various people in the spot was another way in which Deschanel captured the look of the 1920s. The key, he explains, was finding faces that looked like those from the past. "You can't really put your finger on it," he says, "but some of the people who came in looked as if they belonged on *Baywatch* rather than in a Twenties-era commercial."

The look of the characters in the spot was further aided by their costumes. "Our costume designer did a great deal of research to be sure that we had all of our people dressed very authentically," says Anthony. She adds that all of the creative personnel involved with the spot were determined to ensure that it wouldn't have the sparkling-clean look of most commercials: "Our workmen really *were* very dirty, and the clothes *were* from the Twenties. The shoes had been walked in for hundreds of miles."

Work on the spot's images continued after the shoot, as colorist Victor Mulholland of New York's Post Perfect enhanced the footage even more during telecine. "We looked at the authentic stock footage first," Mulholland says, who found that this material had a more textural appearance. "It was a little bit softer, and it had a grainier texture. It had a 'printier' look."

Mulholland used two main techniques to simulate that look. First, to soften the images, he positioned a silk stocking net inside the telecine. Cinematographers have long used such nets behind the camera lens to soften their images, and Mulholland used a favorite brand of today's cinematographers — the Fogal Noblesse — in front of the lens in his machine. "You can layer the nets, but usually one is more than enough," he says.

Mulholland also used a second trick to add some authenticity. During telecine, cinematographers ordinarily try to increase the intensity of the blacks, even if it means a loss of some detail in the shadow. In this case, Mulholland took that step, deepening the blacks and losing detail, but later in the telecine chain, he lightened the blacks again. The detail had been permanently lost, resulting in blacks that not only lacked detail in the shadows, but had also faded to a milky gray.

Other textural elements, including film grain and scratches, were added later by Flame artist Colin Stackpole of Quiet Man Productions.

Deschanel says that the "Integrity" assignment gave him a wide latitude to experiment with methods for simulating old footage. "I think the most interesting thing is that there is no one consistent way of doing it," he says. "It was almost like we couldn't make a mistake." ■

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New Products

compiled by Andrew O. Thompson

Adobe Debuts After Effects 4.0

by Debra Kaufman

San Jose, California-based software provider Adobe Systems recently released the Adobe Dynamic Media Studio, a complete, integrated suite of tools designed for digital studios that employ the full complement of Adobe software products. The package includes Premiere 5.1, After Effects 4.0, Photoshop 5.0, and Illustrator 8.0.

Key to the Dynamic Media Studio package is its latest version of After Effects, a visual effects and motion-graphics tool for Power Macintosh, Windows '98, and Windows NT 4.0. Introduced in 1991 from CoSA, and since bought by Adobe Systems, After Effects is a very popular and frequently utilized tool in the visual effects/broadcast design arenas for film, video, multimedia and the Internet.

According to Adobe senior product manager Stephen Kilisky, After Effects 4.0 reflects the result of user requests gleaned from annual customer surveys, tech-support databases, customer visits, and focus groups at trade shows. Version 4.0 features greater creative control, enhanced productivity and flexibility, and tighter product integration with other popular Adobe software, including Photoshop, Illustrator and Premiere.

The tighter integration offered between these tools is designed to benefit productivity and work flow. Now, the user can preserve adjustment layers and layer effects when importing layered Photoshop files. After Effects 4.0 also incorporates several Photoshop features, including a free transform mode, color adjustment effects, Color Dodge, Color Burn, Exclusion and other transfer modes, and a revised pen tool. The artist can also copy and paste paths from Photoshop and Illustrator to use as masks in After Effects.

Tighter integration with Illustrator includes the ability to import layered Illustrator files as compositions with all of the layers preserved, as well as the capability to position layers more precisely with the Align palette and the new rulers and guides, which work like similar features in Illustrator. With Premiere, After Effects 4.0 lets users import Premiere 5.x projects as compositions. Edited Premiere clips appear as individual layers arranged automatically in the appropriate time-based sequence in the Time Layout window, and After Effects 4.0 also works with third-party Premiere audio-processing plug-ins.

After Effects 4.0 also offers a wide variety of new creative tools for more precise results. More flexible masking capabilities allow users to add up to 128 closed or open path masks to any layers; combine masks using operations such as Add, Subtract, Intersect and Difference; and apply effects such as Stroke or Fill. With regard to adjustment layers, After Effects 4.0 lets the artist globally adjust layers in one step. The new version also offers four warping effects — Bezier Warp, Mesh Warp, Smear and Reshape — which provide different controls to achieve the exact level of distortion desired. (Bezier, Mesh and Reshape are available only in the Production Bundle; Smear is available in the Production Bundle and Standard version.)

Improved audio capabilities include a revamped audio interface, more quality controls and a new set of audio effects (Backwards, Bass & Treble, Delay and Stereo Mixer); and, with the Production Bundle, Flange & Chorus, High-Low Pass, Modulator, Parametric EQ, Reverb and Tone. Also new are audio looping, audio time remapping and high-quality down sampling with support for settings from 96kHz to 8kHz.

Other new effects include Particle Playground, a particle animation tool for producing images that allows the artist to animate a large number of similar objects that move independently but exhibit consistent group behavior — such as explosions or swarming insects. Adjust Effects encompasses a complete set of color adjustment controls. A Transform Effect applies transformations to layers as effects, while render effects creates synthetic elements such as stroked lines, filled objects, laser beams and audio waveforms which can be easily animated and manipulated.

Other improvements include an enhanced motion tracker, more flexible copying and pasting of keyframes, and minor enhancements such as a new Iris Wipe transition and a new Motion Tile effect.

For a quick review and fine-tuning of compositions, After Effects 4.0's RAM Preview allows its users to play back compositions in real time without the need for rendering. The unique user interface offers the Comp, Footage, Layer, Time Layout and Effects work areas as tabbed windows that can be organized in optimal combinations for an efficient work flow. The Project Windows provides predefined and user-defined columns to hide, show, resize or move images, and more functionality appears in tabbed palettes. Among other features, the revamped Time Layout window presents new color labels for associating and selecting layers for group action.

Improved frame caching offers faster interactivity by caching frames while users work; After Effects then responds more quickly because cached frames don't have to be re-rendered or retrieved. A newly introduced, expanded API allows third-party developers to create a wider range of plug-ins with customized user interfaces.

After Effects 4.0 also supports QuickTime 3.0 on the Macintosh and Windows platforms.

Companies that have used After Effects 4.0 include visual effects facilities (Santa Monica's Banned from the Ranch Entertainment, New York's Curious Pictures, and Foundation Imaging in Valencia, California), broadcast designers (Milkshake Design in Miami Beach, Florida and Belief LLC in Santa Monica, California), and motion-graphics designers (Entropy8 Digital Arts in New York, Chevre in Boston, and twenty2product in San Francisco).

Also new on the market from Adobe Systems is Premiere RT, an OEM product that began shipping with the DigiSuite system from Matrox and the ReelTime system from Pinnacle Systems. Premiere RT features broadcast-resolution D-1, lossless compression, dual-stream video, real-time transitions and (with a full-featured 3-D DVE) an optional card for 3-D effects.

Adobe Systems, (408) 536-6000, fax (408) 537-6000, website: www.adobe.com.

Mini-Image Intensifier

OpTex announces its Series 2000 SuperGen Image Intensifiers for the Canon XL-1 camcorder. These compact intensifiers are available with either a Super Gen or Super Gen HP tube — equivalent to Gen III technology. Both versions interface with the XL-1 and are fully compatible electronically, mechanically and optically when used with the standard 16x or wide-angle 3x zoom lenses. These units can also be used with Canon EOS EF lenses via the Canon EF adaptor. OpTex has appropriate lens adaptors for owners of the Canon FD or Nikon AI lenses. Since the CCD's image size for the XL-1 is ⅓", the effective focal length of 35mm SLR lenses is increased by 7.2x, thus making the Canon 200mm f1.8 high-speed lens equivalent to 1440mm at f1.8.

OpTex, (44) 0 181-441-2199, fax (44) 0 181-449-3546, website: www.optextint.com.

Kodak's 800T in 16mm

Eastman Kodak's Vision 800T high-speed color negative film is not available in the 16mm format (7289). Last September, this stock was introduced in 35mm, and it is also available in the 65mm format for special-venue productions. According to Margaret Clark, worldwide manager of the television segment of Kodak's Professional Motion Imaging division, Vision 800T is being produced for 16mm in response to requests from cinematographers and producers who work on documentaries, music videos and low-budget films. Advances in emulsion and manufacturing technologies have made this stock more sensitive to light without grain amplification. The negative is optimized for an E.I. of 800 when exposed in 3200°K light, and an ASA of 500 (with an 85 color correction filter) when exposed in daylight situations. Vision 800T is designed to record mixed hot and cool lighting in approximately the same manner as the human eye, and intercuts well with other Kodak stocks. Advances in film imaging have been augmented by breakthroughs in hybrid telecine technologies (including the Philips Spirit DataCine — see technical specs in the article "From Film to Tape," which begins on page 108). Such devices make it possible to better reflect the original film negative's quality when images are displayed on TV screens; this improved quality will be even more noticeable on HDTV and DTV.

Contact your local Kodak representative for further details.

New Nagra Case

Equipment Emporium now distributes a newly designed field case tailored to fit the Nagra 4.2 recorder or Nagra IV-STC stereo time-code recorder. This design sports a spacious, full-width utility pouch (beneath the Nagra) that can accommodate a time-code slate or miscellaneous sundries such as extra mikes, cables and audiotape. Two smaller pockets are intended to support wireless mic receivers. Having the storage compartments situated underneath the recorder means that no excess stress is placed on the recorder's plastic lid cover. The operator can readily open the case's upper cover in order to change tape without concern that heavy or bulky accessories may drop or get in the way. In addition, the operator has the option of using the Nagra without the top cover, so as to provide maximum access to the tape lid.

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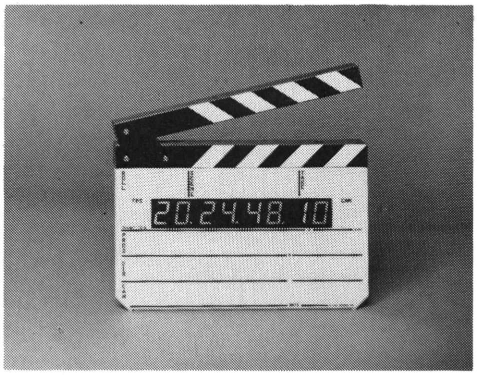

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New Flicker Generator

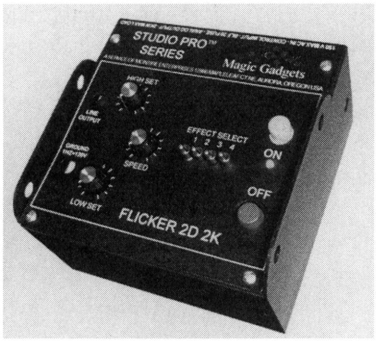
William A. McIntire Enterprises offers Flicker 2D 2K, a multi-effect flicker generator that offers numerous new features, including a remote-control input and an analog output for direct control connection to the Studio Pro 2K Inline AC dimmer. Knob reference marks make for an easy setup.

The 2K Inline AC dimmer offers many new features, including an analog input for control by many analog devices, including the Studio Pro Flicker 2 Digital 2K and an analog loop to simplify connection of multiple dimmers. Its calibrated knob skirt has been replaced within set knob and numbered reference marks.

William A. McIntire Enterprises, (503) 678-6236, fax (503) 795-3878, website: www.magicgadgets.com.

New Fluid Heads

Miller has announced the launch of its DS-25 fluid head, a new pan-and-tilt system specifically suited to ENG and high-end corporate video production. Designed to match the weight, balance and price-performance of the DVCAM and DVCPRO lines of camcorders, the DS-25 is intended for news gathering usage. The lightweight head boasts extended counterbalance and drag selection, and has a low center of gravity for more positive operator feedback



on pan-and-tilt movements.

The four-position pan-and-tilt extends the available amount of drag control — from a light touch right up to a heavy drag — for stability under adverse location conditions. The two-position counterbalance lets you change cameras, lens and battery configurations while maintaining even balance across the tilt range.

The DS-25 utilizes a Miller Sliding Camera Plate with safety lock for quick counterbalance adjustment and camera detachment. Counterbalance and tilt controls are rear-mounted for easy operator access. The head has a 100mm ball leveling base for compatibility to most standard tripods.

Miller packages the DS-25 in a range of camera-support systems, tailored to suit both ends of the price/application spectrum. For example, combining the DS-25 with a Miller 2-Stage carbon-fiber tripod with ground spreader gives the user the benefits of light weight and extended height range.

Miller Fluid Heads, (973) 857-8300, fax (973) 857-8188, website: www.miller.com.au.

MPEG Encoder/Editor Toolbox

Panasonic Industrial Company and VITEC Multimedia, Inc. jointly announce that the LF-D101 DVD-RAM drive is fully compatible with VITEC's MPEG Toolbox-2, an integrated MPEG-2 software encoder/editor for Windows 95, 98 and NT environments.

MPEG Toolbox-2 maximizes the high capacity of the LF-D101 by converting large AVI video files to smaller MPEG-2 files. It also provides extensive MPEG-2 editing capabilities that enables

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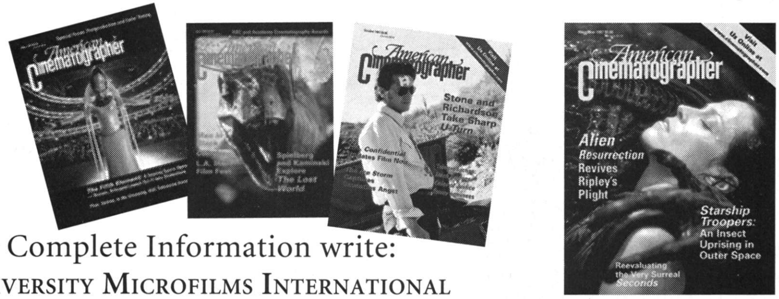
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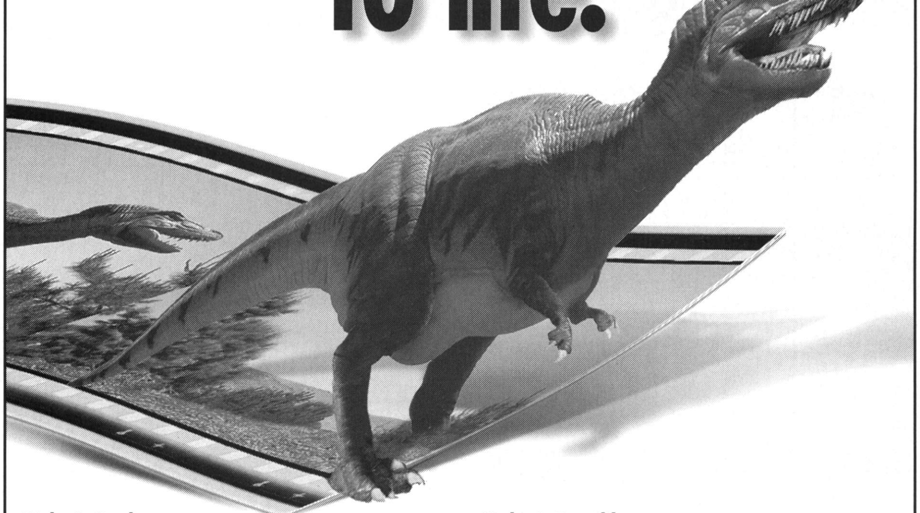

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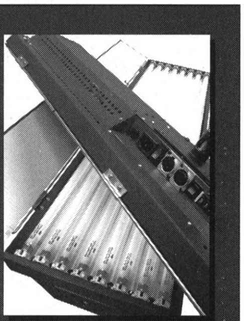

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users to copy video segments stored on a rewritable DVD disc and paste them into a new file without having to re-encode the entire file.

When combined, the VITEC software encoder/editor and Panasonic DVD-RAM drive address the full spectrum of desktop video production needs. Typical applications include marketing presentations, kiosk videos, training films, and MPEG-2 archiving, as well as website animation/graphics development and videos for LAN-based video-on-demand.

VITEC's Toolbox-2 converts AVI into MPEG-1 and MPEG-2 audio, video and system and program streams at variable or constant bit rates. With the high capacity that the DVD-RAM media provides, users can often select lower image-compression rates, which generally translates into a higher-quality video image. Since its media is rewritable, MPEG-2 video archives can be re-used for many years.

VITEC's plug-and-play software package comes bundled with its award-winning Multimedia Video Clip MPEG-2 SE Editor. Video Clip opens MPEG-2 files, copies and pastes video segments to be edited in a draft file, displays a preview of the edited film and generates a new MPEG-2 sequence.

MPEG-2 videos edited by Video Clip are standard; they can be played back at full-screen on a video or VGA monitor by any of the numerous MPEG-2 decoders on the market.

With a removable, rewritable storage capacity of 2.6GB per single-sided disc (5.2GB per double-sided disc), and a low storage cost, the Panasonic LF-D101 drive is ideal for video production. Designed for high performance, the drive has a transfer rate of up to 10.5Mbps, and a 120ms average seek time.

To further enhance performance, the drive includes a 2MB cache buffer. Support for CD technology simplifies the decision to upgrade to the Panasonic DVD-RAM because users will be able to read data and video clips that were previously recorded on CDs.

Fully compliant with the DVD Forum DVD-RAM standards, the LF-D101 drive can read from discs currently accepted by CD-ROM, CD Audio, CD-R, CD-RW and video CD drives, as well as PD, DVD-ROM, DVD video, and DVD-R drives. The Forum-approved DVD-RAM technology also provides a proven growth path — next-generation media will provide a single-side capacity of 4.7GB, and ultimately, 15GB capacities (double-sided discs) will be available.

Panasonic's LF-D101 is available as an internal drive with a SCSI-2 interface. DVD-RAM media, which is marketed under the Panasonic brand name, is also available from several other leading manufacturers. There is a removable double-sided 5.2GB disc, and a 2.6GB single-sided media which is sold with a removable cartridge.

VITEC Multimedia, Inc., (408) 752-8483, fax (408) 752-8486, website: www.vitecmm.com; Panasonic Industrial Company, (408) 945-5600, fax (408) 262-4214, website: www.panasonic.com/oemdvd-ram.

A Lens Revolution

Chicago-based Schumacher Camera announces the availability of the Revolution, an innovative modular snorkel lens system. The lens system comes apart at approximately the middle of the tube to accommodate different modules. The two modules currently available are the Snorkel (referred to as the Horizon Tracker) and the Periscope (dubbed the Dual-Swivel Module).

The lens system features built-in image orientation optics that gives the user control over image/horizon roll (360 degrees continuous). By engaging the horizon lock, the image orientation optics becomes mechanically linked to the snorkel's pan axis. Therefore, its objective lens can be panned and the horizon remains level, without having to pan or move the camera. The user is also able to select a Dutch angle for an image, pan the lens and maintain that angle. The lens system features a scale that indicates the horizon angle in 20-degree increments.

The horizon tracking feature allows the operator to pan in very tight situations: for example, a 360-degree pan can be achieved in an area of about 6 to 7" in diameter. The objective lenses and the snorkel end are both small in size

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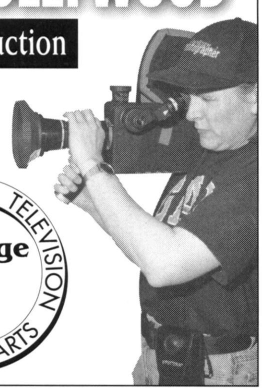

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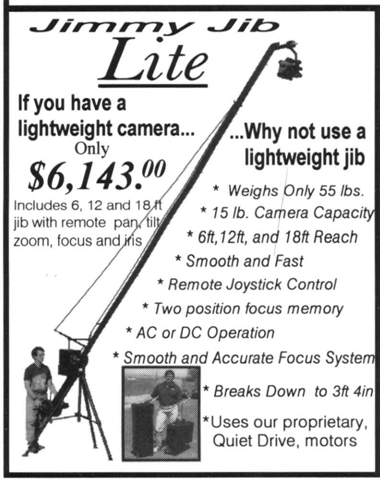

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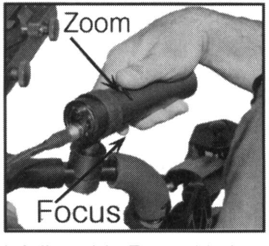

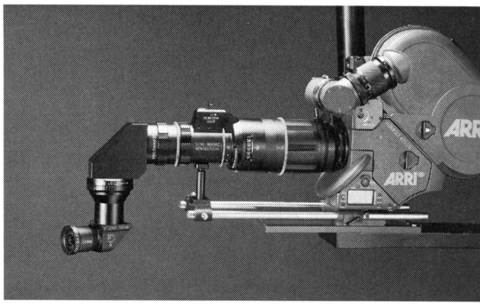

— the lens itself can get closer to the surface and fit into tighter spaces. With the ability to control the horizon angle, the user is able to aim the camera and snorkel at any angle, in any direction and correct the horizon angle.

The Dual-Swivel Module adds a second pan axis to the lens system. By combining this axis with the main pan axis, the user can shoot at infinite angles without special rigging equipment being required. If the camera is aimed downwards, the pan axis at the objective lens can be used to achieve the desired shooting angle. With the horizon tracking/lock engaged, the main axis can now be panned with the horizon and remain level during the movement.

The Revolution has a field lens as well. At no point does the image transmitted through the lens system becomes focused near a lens surface — regardless of whether one is shooting at extreme close focus or infinity. This feature should prevent dust from ruining a shot by becoming focused in the frame. The Revolution package's further features include: Mini PL mount lenses (8, 9, 12, 16, 20, 24, 32, 40 and 60mm); standard gears for motorizing roll, pan axis, focus and iris; filtration of 40.5mm in the mount or 46mm screw-ins at the front; and a universal mount that allows lenses to work on almost all film and video cameras.

Schumacher Camera, (312) 243-3400, (312) 243-8999. ■

Points East

Amazing Effects at Affordable Prices

by Eric Rudolph

Many sophisticated visual effects techniques that have been developed over the last few years on multimillion-dollar equipment, at such major outfits as Industrial Light & Magic and Digital Domain, are now easily and quickly achievable with affordable, lower-cost systems — some surprisingly so.

PC-based systems in the price range of a decent used car can now — albeit somewhat slowly — create impressive, feature-worthy digital effects. For example, Adobe's After Effects (see New Products on page 131), which sells for as little as $600 and runs nicely on a Macintosh G3 (priced at approximately $5,000), is one type of software that's well-suited to filmmakers working in the five- and six-figure budget range. The $65,000 to $200,000 Avid Media Illusion system can create similar effects, and more, with even greater speed.

π *(Pi)*, the first feature from writer/director Darren Aronofsky, who won the Director's Award at last year's Sundance Film Festival (see *AC* April '98), boasts impressive main-title and credits sequences created with a standard Macintosh computer and After Effects software on a budget of $2,000. If the example of π fails to impress, consider that *Variety* recently named the picture one of the most successful films of 1998 in terms of profitability (gross earnings compared to total production costs). According to *Variety's* report, π cost $300,000 to produce and earned $4 million at the box office, achieving a cost/return ratio that would thrill any Hollywood executive if it was achieved on a mainstream film. However, Aronofsky told *AC* that *Variety* was somewhat off the mark, reporting that absolutely everything seen onscreen in π was accomplished for the much lower figure of $60,000, which would make his film the undisputed 1998 earnings-to-budget ratio champ.

Inspired by the efficiency of π's $2,000 titles and credits, Aronofsky and his title-sequence collaborators, Jeremy Dawson and Dan Schrecker, are starting up Amoebae Proteus, a Manhattan-based digital effects company for independent filmmakers. The company plans to maintain a profitable business with affordable rates by purchasing only a small amount of effects hardware and software in the mid- and lower-cost range. "People are asking me why we're doing this when there are digital companies going out of business," Aronofsky notes. "I feel that the companies that are in trouble are making a mistake by concentrating on buying the latest race cars — high-end imaging equipment that becomes obsolete every two years. They should be focusing instead on getting the best drivers. Once you have the talent to do the work, the gear — be it an Inferno or motion-control rig — is easy to rent."

Aronofsky has already landed three major studio projects that he plans to direct and/or produce (including his next feature, *Requiem for a Dream*), and all of them will make good use of Amoebae Proteus's services. In addition, he sees a viable market emerging among East Coast independent filmmakers for low-cost digital work. ➢

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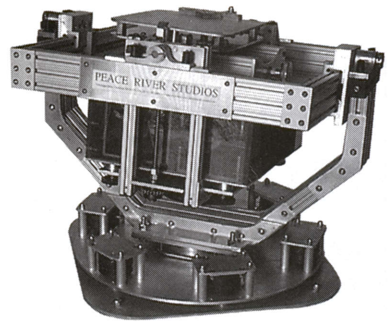

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Thanks to the ubiquity of digital editing, "the independent feature community is becoming more and more aware that digital effects can be included in their low-budget features," says Aronofsky. "When we cut π digitally two years ago, it still might have been conceivable to cut an ultra-low-budget feature on film with a Steenbeck. But almost nobody is cutting on film at any budget level anymore. Those who can't somehow get time on an Avid or Lightworks are making their creative cutting decisions on video."

The spaceships and dinosaurs typically associated with digital effects work probably don't interest most independent filmmakers. However, many might find it impossible to resist the freedom of using post to add atmospheric touches such as rain, fire and smoke to a scene; change the lighting; do sophisticated bluescreen work; do advanced color-correction; mix production media; do high-end matting; and perform rotoscoping and rig removal. Thanks to the very large trickle-down effect from the years of work by the major effects houses, all of these processes can now be done at a greatly reduced cost.

Ross Shain, a senior graphics specialist at New York's Virtual Media (an Avid reseller), recently demonstrated the real-time, high-resolution speed and power of the affordable Avid Media Illusion system to this reporter by rapidly re-creating a bluescreen shot from the effects-laden film *The Borrowers*.

In the scene, an actor playing a Borrower (tiny people who live inside the walls of houses) hangs onto the base of a swinging lightbulb from which smoke is billowing. In seconds, Shain created a traveling matte around the actor, moving the lightbulb and ever-changing smoke and shadows, and then combined the matte with a separate shot of actor John Goodman looking at his tiny nemesis. In an additional few seconds, Shain convincingly completed the scene, and then added a barrage of effects from plug-in programs, including a variety of lens flares and other effects.

According to Shain, with less than $10,000 in Macintosh hardware, After Effects software and various software plug-ins — as well as a good deal of time and patience — one could do all of this and much more. Adds Christy MacKarrell, a Virtual Media graphics specialist, "If you're doing a low-budget independent feature, the Mac/After Effects approach makes a lot of sense. You can do just about the same things as you can with the higher-end gear, but the process is a bit more painful in terms of the time it takes to create the effects, and the delay in seeing the results of your changes."

Low-budget filmmakers can actually save money by availing themselves of affordable digital effects such as bluescreen work. As MacKarrell maintains, "It's usually more cost-effective to shoot certain kinds of difficult scenes against a bluescreen than it is to go on location. You want to control all of the variables, and that's much easier to do in a studio. These affordable digital effects systems allow filmmakers to do sophisticating keying, including wonderful tracking shots, that can be very convincing on the screen."

As one might expect, savvy entrepreneurs are recognizing the vast potential of this new market. In Los Angeles, boutique digital effects firms started by former ILM and Digital Domain staffers are popping up all over town. In New York, where fewer features but more television commercials are produced, business in the affordable digital effects world is also likely to begin booming. "There is a tremendous pool of creative digital effects artists in New York," MacKarrell states. "Like everyone else, people who make their living here doing digital effects for commercials want to be involved in feature films, and they like the looks of the very healthy independent-feature business here. The skill set needed to produce subtle, imaginative effects for commercials and features is pretty much the same."

In the near future, MacKarrell expects to see more boutique digital effects houses begin to blossom in New York's concrete landscape. ■

Books in Review

by George Turner

Job Descriptions for Film, Video & CGI: a Professional Guide
by William E. Hines, SOC
Ed-Venture Films/Books,
342 pps, paper, $27.95

Subtitled *Responsibilities and Duties for the Cinematic Craft Categories and Classifications,* this is the revised and expanded fifth edition of a publication that has been used by professionals and film schools since 1961. Its author, Bill Hines, SOC, has been working in all types of film and video productions for 48 years, not only as a camera operator but also as a writer, producer, director, production manager, actor, cinematographer videographer, mixer, gaffer, grip, makeup artist, wardrobe person, and property master. He certainly knows the territory, which covers some 250 crafts classifications within 21 categories, and for the first time now includes computer graphics. The various categories are listed as follows: Producing, Production Management, Directorial, Camera, Lighting, Grip, Sound, Art, Construction, Special Effects, Set Decorating, Property, Costuming, Wardrobe, Makeup, Transportation, Special Services, Film Laboratory, Editing, Computer Graphics, and Video. Organizational charts are provided for each section.

All industry job classifications are described in detail, with clear and concise explanations of what is expected from each craftsperson during production, and to whom the craftsperson is responsible. The technical duties necessary to accomplish the job are also set forth with specifics. The subdivisions are assorted in approximate chronological order, reflecting the flow from preproduction through production and post. Important appendices include a 38-page practical glossary which is arranged categorically, a 10-page Career Guide to the Crafts, and animation category classifications. Proper emphasis is placed upon the collaborative nature of cinematic production.

This is an accurate reference source for anyone who needs or wants to know about the contributions that each production team member makes to the finished product.

Spaghetti Westerns
by Christopher Frayling
St. Martin's Press,
304 pps., paper, $18.95

During the Sixties, moviegoers met with surprises galore — some pleasant, others unpleasant, and still others a mix of both. The 3-D craze had come and gone, widescreen had come and stayed, color photography was being taken for granted, Draconian censorship was a matter of the past, and the studio system was crumbling. What else was there to be surprised about? Well, how about the sudden worldwide popularity of the Italian Western?

The first snort was a heady brew which took a little getting used to. For Stateside cinephiles, the initial taste came with Sergio Leone's *A Fistful of Dollars,* made in 1964 at Cinecitta Studios in Rome, and featuring a moderately popular American actor, Clint Eastwood, who would later become an international icon. Most of us had known him as a likable young cowboy called Rowdy Yates on the TV series *Rawhide.* Suddenly, he had transformed into a hard-faced, cold-blooded bounty hunter who killed men by the score and hauled them away in a wagon. Instead of Monu-

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ment Valley or Lone Pine landscapes, we were seeing the unfamiliar desert and mountain terrain of Spain, and rather than a smooth Victor Young score, we heard Ennio Morricone's eccentric modernist music. This particular Leone film — strange, but somehow endearing — kicked off a veritable avalanche of similarly conceived productions. Before the dust cleared, Eastwood had become a major force in world cinema, the dormant Italian film industry was temporarily revived for a time, and the careers of many other American and European actors flourished.

As the master of the genre, Leone had a great eye for picturesque vistas, hard-lined faces and intricate details. Pace meant as little to him as it did to Erich von Stroheim. He also reveled in playing actors against type. Who else would cast Charles Bronson as a righteous hero and Henry Fonda as a man who guns down a cute little boy, as Leone did in his 1968 masterpiece *Once Upon a Time in the West*?

In 1981, Christopher Frayling, rector of the Royal College of Art, wrote *Spaghetti Westerns*, which was, and still is, the best study of the Italian Western. The book delves into early European Western traditions, and details the social, political and economic climates from which the genre evolved. This revised edition is welcome indeed.

Video Editing and Postproduction

by Gary H. Anderson

Focal Press, 196 pps., paper,

This fourth edition of Focal's valuable work on the mysteries of video editing and postproduction is now available as a large-format paperback. Given the revolutionary changes that have already happened — and which continue to occur with startling regularity — it's not surprising that the new edition differs substantially from previous incarnations.

Written by a pro who has earned four Emmy Awards and seven nominations, the book follows a sensible route. A brief historical overview begins with the old cut-and-splice days that followed the 1956 introduction of CBS's first on-the-air videotape program. In rather dizzying succession came a practical tape editing block in 1958, electronic editing in the early 1960s, time-code systems, computerized editing, small-format editing, linear and nonlinear editing methods, analog-to-digital conversion, and digital effects editing.

Video editing and postproduction have reached a level of sophistication that ranks them among the moving image's least understood areas of work. Anderson sets out to provide the basic information necessary for one to acquire a working knowledge of the field, placing approximately equal emphasis on its technical and creative aspects. Budgeting, personnel management and tips on how to get the most out of equipment are all given due attention.

The easy-to-follow text is complemented by plenty of helpful photos and diagrams, as well as a long, comprehensive glossary of terms. This particular publication should be of value to both the up-and-coming editor of the future and those who have already secured their reputations. ■

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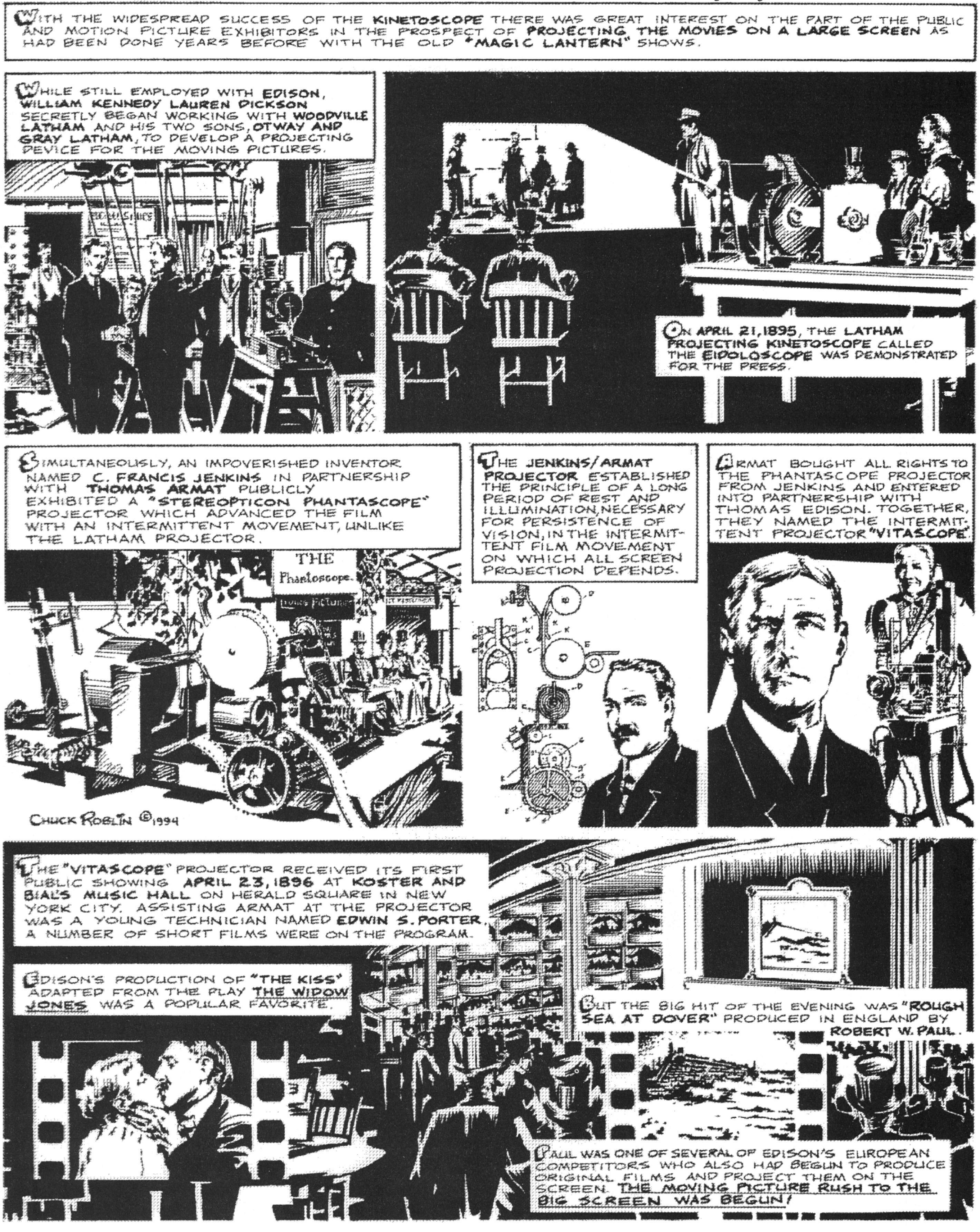
Next Month in *AC*:

Summer of Sam
Director:
Spike Lee
Cinematographer:
Ellen Kuras, ASC

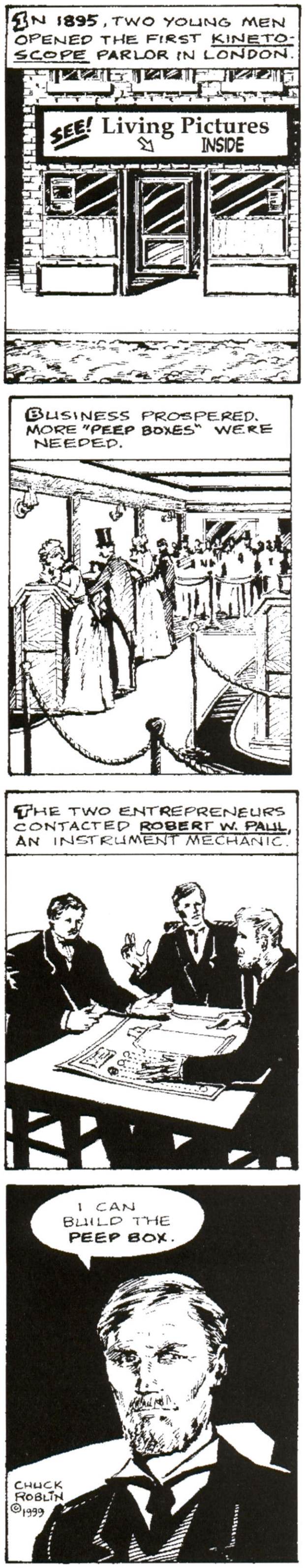
The Thomas Crown Affair
Director:
John McTiernan
Cinematographer:
Tom Priestley Jr.

PROJECTING THE MOVIES

by Ray Zone & Chuck Roblin


WITH THE WIDESPREAD SUCCESS OF THE KINETOSCOPE THERE WAS GREAT INTEREST ON THE PART OF THE PUBLIC AND MOTION PICTURE EXHIBITORS IN THE PROSPECT OF PROJECTING THE MOVIES ON A LARGE SCREEN AS HAD BEEN DONE YEARS BEFORE WITH THE OLD "MAGIC LANTERN" SHOWS.
WHILE STILL EMPLOYED WITH EDISON, WILLIAM KENNEDY LAUREN DICKSON SECRETLY BEGAN WORKING WITH WOODVILLE LATHAM AND HIS TWO SONS, OTWAY AND GRAY LATHAM, TO DEVELOP A PROJECTING DEVICE FOR THE MOVING PICTURES.
ON APRIL 21, 1895, THE LATHAM PROJECTING KINETOSCOPE CALLED THE EIDOLOSCOPE WAS DEMONSTRATED FOR THE PRESS.
SIMULTANEOUSLY, AN IMPOVERISHED INVENTOR NAMED C. FRANCIS JENKINS IN PARTNERSHIP WITH THOMAS ARMAT PUBLICLY EXHIBITED A "STEREOPTICON PHANTASCOPE" PROJECTOR WHICH ADVANCED THE FILM WITH AN INTERMITTENT MOVEMENT, UNLIKE THE LATHAM PROJECTOR.
THE
Phantoscope.
Living Pictures
CHUCK ROBLIN ©1994
THE JENKINS/ARMAT PROJECTOR ESTABLISHED THE PRINCIPLE OF A LONG PERIOD OF REST AND ILLUMINATION, NECESSARY FOR PERSISTENCE OF VISION, IN THE INTERMITTENT FILM MOVEMENT ON WHICH ALL SCREEN PROJECTION DEPENDS.
ARMAT BOUGHT ALL RIGHTS TO THE PHANTASCOPE PROJECTOR FROM JENKINS AND ENTERED INTO PARTNERSHIP WITH THOMAS EDISON. TOGETHER, THEY NAMED THE INTERMITTENT PROJECTOR "VITASCOPE".
THE "VITASCOPE" PROJECTOR RECEIVED ITS FIRST PUBLIC SHOWING APRIL 23, 1896 AT KOSTER AND BIAL'S MUSIC HALL ON HERALD SQUARE IN NEW YORK CITY. ASSISTING ARMAT AT THE PROJECTOR WAS A YOUNG TECHNICIAN NAMED EDWIN S. PORTER. A NUMBER OF SHORT FILMS WERE ON THE PROGRAM.
EDISON'S PRODUCTION OF "THE KISS" ADAPTED FROM THE PLAY THE WIDOW JONES WAS A POPULAR FAVORITE.
BUT THE BIG HIT OF THE EVENING WAS "ROUGH SEA AT DOVER" PRODUCED IN ENGLAND BY ROBERT W. PAUL.
PAUL WAS ONE OF SEVERAL OF EDISON'S EUROPEAN COMPETITORS WHO ALSO HAD BEGUN TO PRODUCE ORIGINAL FILMS AND PROJECT THEM ON THE SCREEN. THE MOVING PICTURE RUSH TO THE BIG SCREEN WAS BEGUN!

Next Month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BUSINESS PROSPERED. MORE "PEEP BOXES" WERE NEEDED.
THE TWO ENTREPRENEURS CONTACTED ROBERT W. PAUL, AN INSTRUMENT MECHANIC.
I CAN BUILD THE PEEP BOX.
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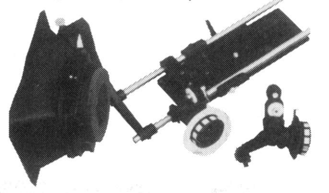

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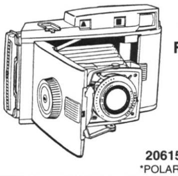

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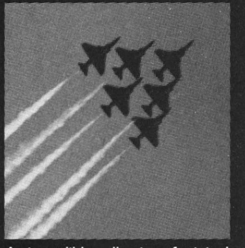

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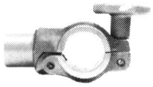

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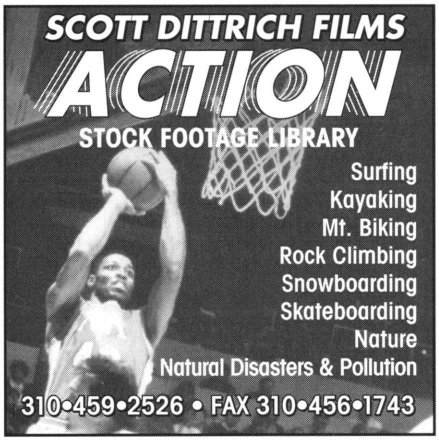

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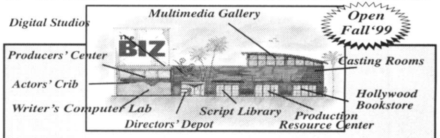

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From the Clubhouse

New ASC Active Member

Director of photography **Peter Sova** is a native of the former Czechoslovakia. His first job in the film industry was as a technician for General Camera in New York. Sova became a fully fledged director of photography on the acclaimed independent film *Short Eyes*, which was directed by Robert M. Young. This adaptation of Miguel Pinero's play earned Best Picture honors at the 1977 New York Film Festival, and also won the Best Cinematography prize at the Virgin Islands Film Festival. Sova later teamed up with Baltimore-based director Barry Levinson to shoot such projects as *Diner*, *Tin Men*, *Good Morning Vietnam* and *Jimmy Hollywood*. The cameraman's other credits include the TV series *The Equalizer*, the Errol Morris documentary *Six Stories*, and the feature films *Feast of July*, *Sgt. Bilko*, *The Proposition* and *Donnie Brasco*.

New ASC Associates

Leon Silverman is executive vice president of the Hollywood-based Laser Pacific Media Corporation, and a longtime proponent of introducing new film technologies. He played a key role in the establishment of Laser Pacific's Electronic Laboratory, which pioneered many tools and techniques that are now a standard part of the electronic postproduction process for film. In 1989, he was recognized for these contributions when Laser Pacific received an Emmy Award for Outstanding Achievement in Engineering Development.

In 1987, Silverman was celebrated for his assistance in the development of Laser Pacific's SuperComputer assembly process, which later earned the company another Technical Emmy. In 1992, he spearheaded Laser Pacific's entry into MPEG digital compression. Silverman is currently helping to build and expand Laser Pacific's digital visual effects division, its DVD Authoring and Encoding facility, and its new High-Definition laboratory.

Silverman is a founding member and current executive vice president of the Technology Council of the Motion Picture and Television Industry. In addition, he sits on the board of directors of the International Teleproduction Society (Southern California Chapter), where he also serves as president. He has taught classes in film and television postproduction at UCLA Extension, and functioned as an associate adjunct instructor in Cinematography at USC's School of Cinema and Television.

John L. Sprung is the director of technology at Paramount Pictures Television, where he's been active in planning the industry's transition to the HDTV format. Sprung graduated from UCLA in 1971 with a mathematics degree, and then spent 10 years working on low-budget features, industrials and educational films in numerous crew positions ranging from gaffer to director of photography. In 1985, he joined Tri-Star Pictures, where he worked to fulfill the studio's theatrical commitments in their foreign, airline, cruise ship and military markets. The following year, Viacom Productions hired Sprung as their manager of engineering. During his eight-year tenure there, he was responsible for overseeing technical policy on nine TV series, 15 pilots and more than 30 TV movies. His duties included supervising the mixing of music and effects tracks, writing custom software in assembly language, and authoring/maintaining postproduction manuals. An avid interest in emerging technologies led Sprung to become an early advocate of electronic post, and one of the first to convert PAL/SECAM through 3-2 reconstruction.

Sprung is involved with numerous professional organizations, including ACE, ACM, IATSE Local 600 and IEEE. For the past two years, he has presented papers on HDTV and the art of cinematography for SMPTE and the World Research Group. He's also been actively engaged in SMPTE's Advanced Digital Image Architecture Task Force.

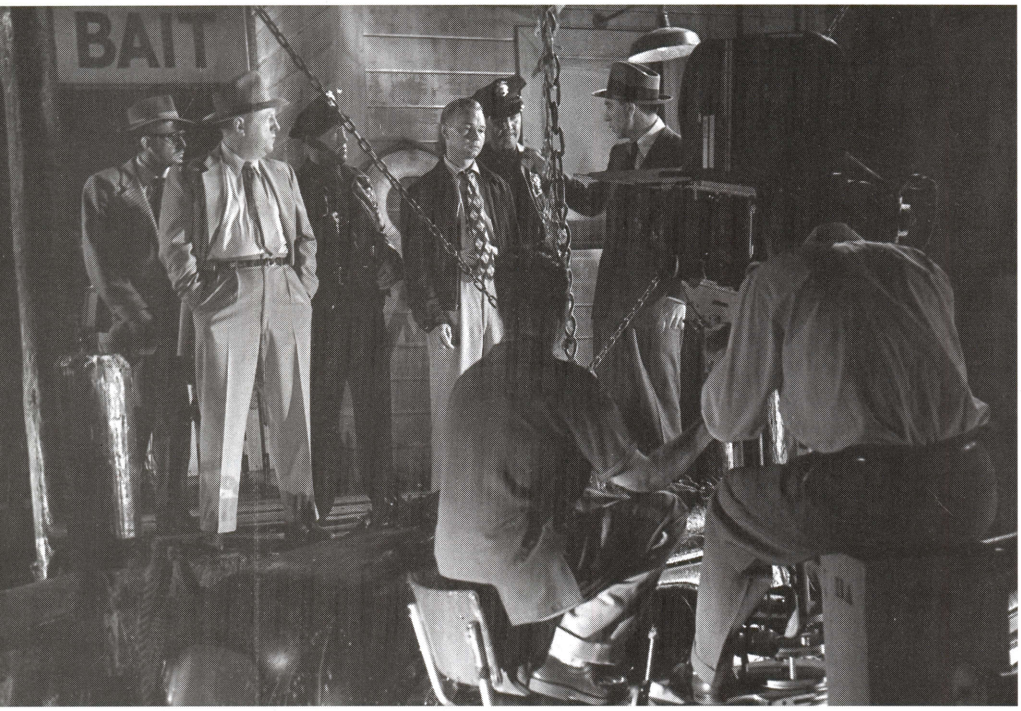
New Emmy Award Category for Cinematography

Beginning next year, the National Academy of Television Arts and Sciences will present an Emmy Award for Outstanding Cinematography for Multi-Camera Comedy Series. During his tenure as Junior Governor of the Academy's Cinematographer Peer Group, Isadore Mankofsy, ASC urged Academy members to consider honoring the directors of photography who shoot prime-time situation comedies. During the early part of the 1997-98 television season, the six major networks offered 62 situation comedies in their regular programming, and approximately 60 percent of them were being shot on film.

Says Mankofsky, "I had spoken with a number of cameramen who expressed the feeling that they were being excluded from recognition because there wasn't an award for cinematographers shooting multi-camera shows on film. If you wanted to enter a multiple-camera show as a cinematographer, you had to enter as a lighting director. The rules excluded them from entering [in the existing Regular Series and Movie and Miniseries categories]. "The omission of such an Emmy is probably an oversight — a remnant from an earlier time when virtually all sitcoms originated on electric cameras."

Aiding Mankofsky in this project was the Cinematography Peer Group's senior governor, Robert F. Liu, ASC, with whom Mankofsky has now switched posts. ■

WRAP SHOT



The brainchild of producer/director/star Jack Webb, the hard-boiled detective show *Dragnet* initially ran on NBC from 1952-58, with a total of 263 episodes filmed in black-and-white. The series (and 1954 feature film of the same title) trailed intrepid Los Angeles Detective Sergeant Joe Friday (Webb) through cases based on LAPD records. The program had a unique "just-the-facts" storytelling style largely devoid of Hollywood hyperbole.

Dragnet was one of the first TV shows to bring feature film-type camerawork to the small screen. In the early 1950s, popular consensus held that flat, even lighting was required to produce proper images for the airwaves. But under Webb's influence, the popular series' visual style was far from bland: precise compositions (incorporating extreme foreground/background objects and subjects) and careful illuminations often added a controlled sense of drama.

One of the primary directors of photography on *Dragnet* was Edward Colman, ASC, a veteran cameraman whose previous experience with process work and other photographic trickery provided ample preparation for the series' exacting work. "I have adhered to standard motion picture production procedures because I feel that it's a proven technique," Colman stated in the April 1954 issue of *American Cinematographer*. "Now we have successfully transplanted it to television production."

He credited much of this progress to the staff at his film laboratory, noting that they had learned much about making proper prints for broadcast. "In feature production, set lighting is a costly item," Colman noted. "We could spend more time lighting *Dragnet* than we do, but it would increase costs. Our problem is to know when to *stop* lighting."

One technique Colman often utilized to light in a more naturalistic (and speedy) manner was "lantensification" — the treatment of an exposed film emulsion to intensify its latent image before development. This process could be accomplished by way of three different methods: with a chemical bath solution (such as a 0.5 percent solution of potassium metabisulphite or sodium bisulphite); via chemical vapor (using mercury or sulfur dioxide); or using controlled post-exposure fogging to build up existing sensitivity specks, which could be done with a simple 15-watt dark-green panchromatic safelight.

The latter method is, of course, analogous to "flashing" the film, and is still used by contemporary cameramen.

"I shoot all of my night exteriors with lantensification in mind," Colman reported. "The first time we tried it, we had an action sequence that was to take place on an actual studio soundstage. A suspect was being tracked, and he was to dodge between the sets, then scramble up a ladder and continue his flight on the catwalks. Because the area of action was so vast, there was not enough equipment at the studio to illuminate it. So we shot with the light we had and then ordered the negative [to be] lantensified to bring it up to normal contrast.

"I also feel that we get a better TV image with lantensification. Using the process was first a matter of production economy, but it also turned out to be a better method photographically."

In the scene above, Colman and his crew use a Mitchell BNC to film a sequence in which Friday (at far right) and his partner, Officer Frank Smith (Ben Alexander), question a suspect as the car he's driven off a pier is being recovered. An Arriflex 35 was employed to shoot handheld work and extreme angles.

Colman would later shoot Webb's military drama *The D.I.*, the Matt Helm super-spy romp *The Ambushers*, and such lighthearted fare as *The Absent-Minded Professor, Son of Flubber, Mary Poppins* and *The Love Bug*.

In 1967, Jack Webb revived *Dragnet*, and the show ran for another 98 episodes — this time in color — until Detective Friday finally retired his badge (number 714) and gun in 1970.

— David E. Williams

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“I’ve been shooting through Tiffen filters for a long, long time— and I intend to keep right on using them.”

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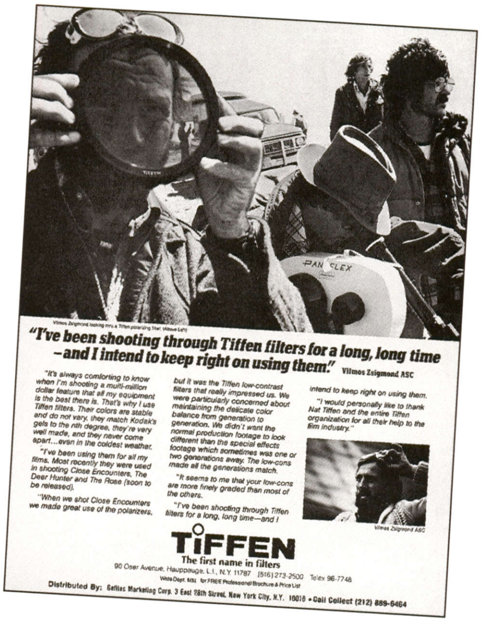

Vilmos Zsigmond looking thru a Tiffen polarizing filter. (Above Left)

“I’ve been shooting through Tiffen filters for a long, long time —and I intend to keep right on using them.” Vilmos Zsigmond ASC

“It’s always comforting to know when I’m shooting a multi-million dollar feature that all my equipment is the best there is. That’s why I use Tiffen filters. Their colors are stable and do not vary, they match Kodak’s gels to the nth degree, they’re very well made, and they never come apart...even in the coldest weather.

“I’ve been using them for all my films. Most recently they were used in shooting Close Encounters, The Deer Hunter and The Rose (soon to be released).

“When we shot Close Encounters we made great use of the polarizers, but it was the Tiffen low-contrast filters that really impressed us. We were particularly concerned about maintaining the delicate color balance from generation to generation. We didn’t want the normal production footage to look different than the special effects footage which sometimes was one or two generations away. The low-cons made all the generations match.

“It seems to me that your low-cons are more finely graded than most of the others.

“I’ve been shooting through Tiffen filters for a long, long time—and I intend to keep right on using them.

“I would personally like to thank Nat Tiffen and the entire Tiffen organization for all their help to the film industry.”

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American Cinematographer 1979

For Vilmos, one thing has stayed the same since 1979: he still counts on Tiffen filters to help bring his creative vision to life. What’s changed are the number of exclusive Tiffen innovations he can choose from. In 1979, Vilmos relied on Polarizers and Low Contrast filters.

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